Secondhand Smoke Exposure and Subclinical Cardiovascular Disease: The Multi-Ethnic Study of Atherosclerosis

by

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Abstract

Few studies have evaluated the association between secondhand smoke (SHS) and subclinical cardiovascular disease (CVD) among ethnically diverse populations. This study assessed the impact of SHS on three domains of subclinical CVD (inflammation, atherosclerosis, and peripheral arterial disease) among 5,032 non-smoking adults 45-84 years without prior CVD participating in the Multi-Ethnic Study of Atherosclerosis (MESA) from 2000 to 2002. SHS exposure was determined by self-report, and urinary cotinine in a subset. The multi-adjusted geometric mean ratios (95% confidence interval) of high sensitivity C-reactive protein comparing 407 participants with SHS ≥12 hours/week vs 3,035 unexposed were 1.26 (1.12, 1.41) and 1.14 (1.02, 1.26) before and after adjustment for body mass index, respectively. The corresponding ratios for interleukin 6 were 1.11 (1.04, 1.18) and 1.05 (0.98, 1.11), and for internal carotid intima media thickness they were 1.04 (1.00, 1.09) and 1.04 (0.99, 1.08). Fibrinogen and coronary artery calcification were not associated with SHS. The prevalence of peripheral arterial disease (ABI≤0.9 or ABI≥1.4) was associated with detectable urinary cotinine (Odds ratio: 2.0l; 95% confidence interval: 1.13, 3.90) but not with self-reported SHS. Despite limited exposure assessment, this study supports the association of SHS exposure with hsCRP, and maybe with IL-6, internal cIMT, and peripheral arterial disease.

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Chapter 1: Introduction

Secondhand smoke (SHS) exposure is a global cause of morbidity and mortality.[1] A third of non-smoking adults are exposed to SHS worldwide.[1] In the US, 25% of the population remains exposed to SHS, disproportionately affecting communities with low income.[2] SHS is an established cardiovascular disease (CVD) risk factor.[3,4] Meta-analyses have estimated that SHS exposure is associated with a 31% increased risk of coronary heart disease[3] and 20-30% increased risk of stroke.[5-7] The enactment of indoor smoke-free policies have been followed by important reductions in coronary heart disease hospitalizations,[8] providing additional evidence on the potential cardiovascular benefits of reducing SHS exposure in the population. The 2014 Surgeon General Report, however, estimated that around 33,000 non-smokers die every year from SHS-related coronary heart disease in the US.[6]

Possible mechanisms for SHS-related cardiovascular toxicity include increased platelet aggregability, endothelial dysfunction, inflammation, oxidative stress, arterial stiffness and atherosclerosis.[9-13] Relatively few studies have evaluated the association between SHS exposure and subclinical CVD among ethnically diverse populations at currently relevant levels of exposure. Self-reported SHS exposure has been associated with carotid intima media thickness (cIMT) and coronary artery calcification (CAC) in studies from the United States[14-17] and Europe,[18,19] although most studies were conducted several decades ago. Few studies have evaluated the association between SHS and peripheral arterial disease, with inconsistent findings.[20-22] With mostly supportive findings, a larger body of evidence is available for the association between SHS exposure and high-sensitive C-reactive protein (hsCRP), including studies among adolescents,[23-26]

pregnant women,[27] and adults.[28-36] Studies evaluating the association between self-reported or biomarker-based SHS exposure and fibrinogen have generally shown consistent positive associations.[32-35,37] For interleukin 6 (IL-6), the evidence is largely null, although most studies are small.[28,29,32]

The Multi-Ethnic Study of Atherosclerosis (MESA) was specifically designed to assess subclinical cardiovascular disease and its risk factors among an ethnically diverse, community-based cohort from six urban communities around the United States. MESA provides a unique opportunity to inform our understanding of relevant mechanistic pathways for cardiovascular disease at modern levels of SHS exposure. In this study, our objective was to examine the cross-sectional association of SHS exposure with markers of inflammation, subclinical atherosclerosis, and peripheral arterial disease in non-smoking MESA participants. SHS exposure was assessed by self-report in the overall population as well as by urinary cotinine in a random subset**.**

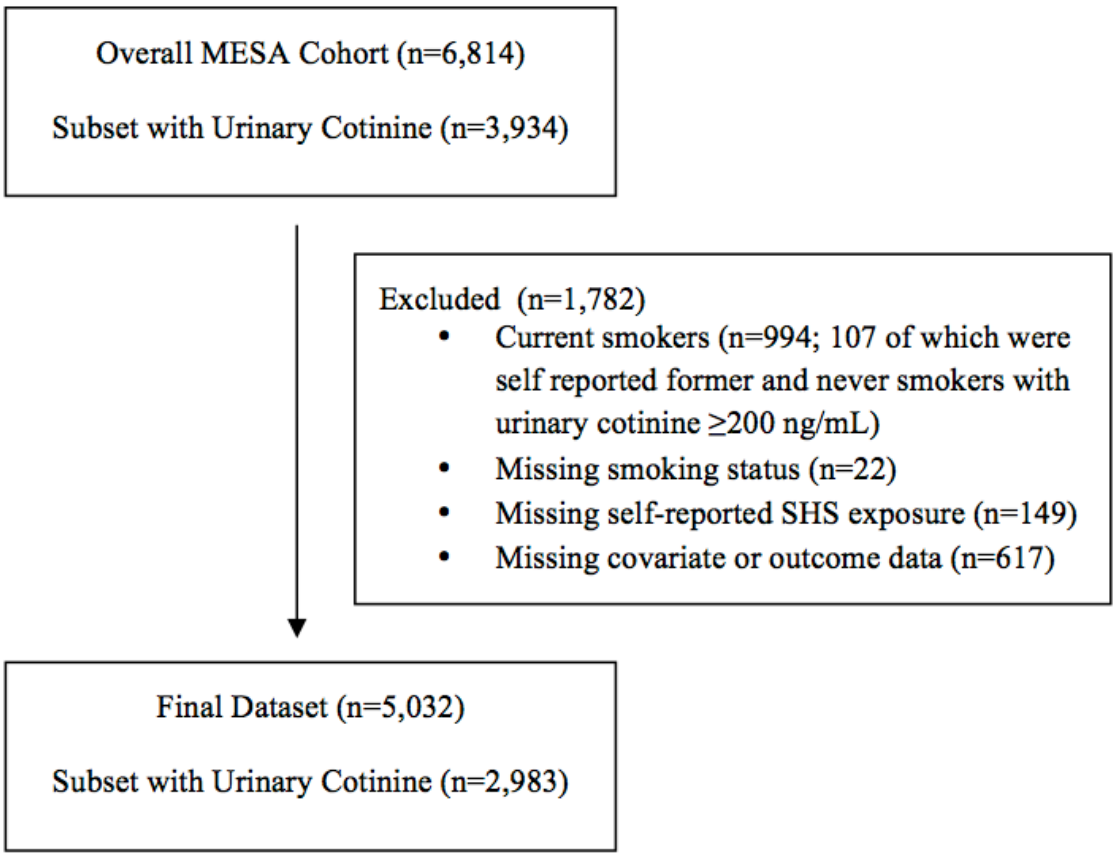
Chapter 2: Methods

2. 1 Study population

MESA is a community-based prospective cohort study of 6,814 White, African-American, Hispanic, or Chinese-American men and women ages 45 to 84 years old who were free of clinically apparent CVD at the baseline examination between July 2000 and 2002. Details of the study design, recruitment, and data collection have previously been published.[38] Participants were enrolled from Forsyth County, North Carolina; New York City, New York; Baltimore, Maryland; St. Paul, Minnesota; Chicago, Illinois; and Los Angeles, California. The race/ethnicity distribution was as follows: 39% non-Hispanic whites, 28% African-Americans, 22% Hispanics, and 12% Chinese-Americans. All field-centers' institutional review boards approved the study and all participants provided written informed consent.

For this study, we excluded 887 participants who were current smokers based on self-report, 107 participants with urinary cotinine concentrations above concentrations ≥200 ng/mL (likely current smokers),[39,40] 149 participants missing data on self-reported SHS exposure, and 639 participants missing other variables of interest, leaving 5,032 participants for this analysis (Figure 1). Among them, 2,983 participants had urinary cotinine available. Urinary cotinine, a specific biomarker of recent SHS exposure,[41] was analyzed in a random subsample of MESA participants who were enrolled into the MESA Lung sub-study (n=3,965). Sociodemographic characteristics in our study population for analyses based on self-reported SHS exposure (n=5,032) and urinary cotinine (n=2,983) were similar to the overall non-current smoking MESA population (Supplementary Table 1).

Figure 1: Definition of Study Population



Supplementary Table 1: Sociodemographic Characteristics of 5,032 Non-Smoking MESA Participants by Smoking Status Exposure Assessment

	Study population	Study population subset with urinary cotinine available	MESA non-smokers
N	**5,032**	**2,983**	**5,820**
Men	46.0	47.3	45.8
Age	62.5 (10.3)	61.63 (9.96)	62.76 (10.28)
Race/Ethnicity			
White	39.5	35.9	39.0
African-American	24.1	22.5	26.2
Chinese-American	14.1	18.8	12.9
Hispanic	22.4	22.8	22.0
Study Site			
WFU	14.2	13.9	15.3
COL	16.3	18.2	16.0
JHU	14.6	11.7	15.9
UMN	15.2	13.3	15.1
NWU	18.4	20.0	17.6
UCLA	21.2	23.4	20.2

[a]All values are mean (standard deviation), proportion (%), or median (IQR)

2.2 Data collection

During the baseline examination, standardized questionnaires were used to obtain demographic information, level of education, family income, current alcohol and tobacco use, medical history, medication use, family history of CVD. The examination was conducted in the morning after 12 hours of fasting using calibrated devices. Body mass index (BMI) was calculated as measured weight in kilograms divided by measured height in meters squared. Resting heart rate was measured on all participants using a 12-lead electrocardiogram [(ECG), (Marquette MAC-1200; GE Healthcare, Milwaukee, WI, USA)] for three consecutive 10-second recordings. Systolic and diastolic resting blood pressures were measured in seated position using Critikon Dinamap Pro 100 (Critikon, Tampa, Florida). The average of the second and third of three blood pressure measurements taken 2 minutes apart were used in the analyses. Hypertension was defined as a systolic blood pressure ≥140 mmHg, a diastolic blood pressure ≥90 mmHg, or the use of medications for hypertension.[42]

Lipids including total and HDL cholesterol, triglycerides, and glucose levels were measured from fasting plasma samples in a central laboratory (University of Vermont, Burlington, VT).[43] Total cholesterol was measured from plasma using a cholesterol oxidase method (Roche Diagnostics, Indianapolis, IN) on a Roche COBAS FARA centrifugal analyzer. High-density lipoprotein cholesterol (HDL-C) was measured using the cholesterol oxidase method (Roche Diagnostics, Indianapolis, IN) after precipitation of non-HDL with magnesium/dextran.[44] Triglycerides were measured using a glycerol-blanked enzymatic method (Roche Diagnostics, Indianapolis, IN) on the Roche COBAS FARA centrifugal analyzer. Low-density lipoprotein cholesterol (LDL-C) was calculated

by the Friedewald equation among participants with a triglyceride value <400 mg/dL.[45] Diabetes was defined by the use of insulin or oral hypoglycemic medication or a fasting blood glucose of ≥126 mg/dL.[46] Participants were considered to have impaired fasting glucose if they did not have diabetes according to the preceding criteria but their fasting blood glucose level was ≥100 to <126 mg/dL.

Physical activity was measured by the MESA Typical Week Physical Activity Survey (TWPAS), adapted from the Cross-Cultural Activity Participation Study[47] designed to identify the time spent in and frequency of various physical activities including light, moderate, and heavy-intensity activities. Minutes of activity were summed for each discrete activity type and multiplied by metabolic equivalent (MET) level. For the present analysis, we used a summary variable for physical activity defined as the sum of moderate and vigorous physical activity (MVPA) in MET-minutes/day. Minutes of activities per week were converted to hours for ease of presentation.

2.3 Secondhand smoke exposure

Information on current SHS exposure was obtained by asking non-current smoking participants the following question: "During the past year about how many hours per week were you in close contact with people when they were smoking? (e.g. in your home, in a car, at work or other close quarters)." Urinary cotinine (ng/mL) was measured by immunoassay LLD (lower detection limit) (Immulite 2000 Nicotine Metabolite Assay; Diagnostic Products Corp., Los Angeles, CA) as part of MESA Lung.[40] The urinary cotinine detection level was 10 ng/mL. In our study population, only 10% (n=299) non-smoking participants with urinary cotinine measurements available had detectable urinary cotinine concentrations.

2.4 Inflammation

Serum hsCRP was measured using a high-sensitivity assay (N-High-Sensitivity CRP; Dade Behring, Deerfield, IL). The intra-assay coefficient of variation (CV) for hsCRP ranged from 2.3-4.4% and the inter-assay CV ranged from 2.1-5.7%. IL-6 was measured by ultrasensitive enzyme-linked immunosorbent assay (Quantikine HS Human IL-6 Immunoassay; R&D Systems, Minneapolis, MN). The laboratory CV for this assay is 6.3%.[48] Serum fibrinogen was measured using immunoprecipitation of fibrinogen antigen using the BNII nephelometer (N-Antiserum to Human Fibrinogen; Dade Behring Inc., Deerfield, IL) with intra- and inter-assay coefficients of variations (CV) as 2.7% and 2.6%, respectively. We evaluated inflammation markers as continuous outcomes. For hsCRP, we also utilized hsCRP ≥2 mg/L based on the Justification for the Use of Statins in Primary Prevention: an Intervention Trial Evaluating Rosuvastatin (JUPITER) trial which encouraged the use of hsCRP ≥2 mg/L as a screening tool for statin therapy.[49]

2.5 Subclinical atherosclerosis

The right and left common carotid and internal carotid arteries and the near and far walls were imaged during carotid ultrasonography according to a scanning protocol using high- resolution B-mode ultrasound with a Logiq 700 machine (General Electric Medical Systems, Waukesha, Wisconsin)[50]. Images were digitized and analyzed centrally at the MESA ultrasound reading center (Tufts Medical Center). We defined internal and common carotid artery IMT as the mean of the maximum cIMT of the near and far walls on the right and left sides similar to previous MESA studies.[51,52]

For coronary artery calcium (CAC) measures, cardiac CT was performed using either a cardiac-gated electron beam CT scanner (Imatron C-150XL, GE-Imatron, San

Francisco, CA) or using a 4- slice multi-detector CT instrument acquiring slices for each cardiac cycle in a sequential or axial scan mode. Images were centrally read at the MESA CT reading center (Harbor–University of California, Los Angeles). The scanning protocol for MESA has been previously published.[53] For each scan, the total phantom-adjusted Agatston score, defined as the sum of calcium measures from the left anterior descending, circumflex, and left and right coronary arteries, was calculated; the mean score was used in these analyses. We quantified CAC as two binary measures; 1) present (CAC>0) versus absent; or 2) less than versus greater than the 75th percentile.

2.6 Peripheral arterial disease

Ankle-Brachial Index (ABI) measurements were obtained after resting in supine position for 5 minutes using a specific protocol to measure systolic blood pressure in each posterior tibial and dorsalis pedis artery in both legs and in the brachial artery in both arms. All blood pressure measurements were detected with a continuous-wave Doppler ultrasound probe. For each leg, the ABI was calculated as the higher of the posterior tibial or dorsalis pedis systolic pressures in each leg divided by the higher of the 2 systolic blood pressure measurements in both arms. For this study, we quantified ABI as three binary measurements: 1) ABI≤0.9 (excluding participants with ABI ≥1.4), 2) ABI≥1.4 (excluding participants with ABI ≤0.9), and 3) ABI≤0.9 or ABI≥1.4 in accordance with previous MESA studies showing both low and high ABI were associated with CVD events.[54]

2.7 Statistical analysis

Descriptive statistics were utilized to describe sociodemographic and cardiovascular risk factors overall and by SHS exposure (no exposure and quartiles of

hours per week) at baseline. Non-normally distributed variables including hsCRP, IL-6, Fibrinogen, and cIMT were log-transformed (natural logarithm) to improve normality. Analysis of variance and Chi-squared tests were used to compare differences in means and proportions across categories of SHS exposure, respectively.

Multivariable linear regression models on log-transformed CVD markers (hsCRP, IL-6, Fibrinogen, and cIMT) were used to estimate geometric mean ratios comparing continuous CVD marker levels by SHS exposure category. For dichotomous outcomes (hsCRP≥2, CAC>0, CAC>75th percentile, ABI≤0.9, ABI≥1.4, and ABI≤0.9 or ABI≥1.4), we calculated prevalence odds ratios by SHS exposure using multivariate logistic regression. Hours of SHS exposure per week were modeled as categorical with five categories and zero hours of self-reported SHS exposure per week as the reference category. Models were adjusted for covariates in a progressive manner. Model 1 adjusted for age, gender, race/ethnicity, study site, education (high school or less or more than high school), and income (<$25,000 or ≥$25,000/year). Model 2 included model 1 variables plus hypertension (yes or no), diabetes (yes or no), LDL-C (mg/dL), treatment for dyslipidemia (yes or no), physical activity (MET-hrs/week), and cigarette smoking status (never or former). Model 3 included model 2 variables and BMI (kg/m^2). For all analyses, *P*-values for trend were obtained by including a continuous variable with the medians corresponding to each quartile of the SHS exposure distribution in the regression model.[55]

We evaluated effect measure modification of the fully adjusted association between SHS exposure and continuous subclinical CVD markers by categories of gender, age, race/ethnicity, study site, education, and cigarette smoking status entering the

product of SHS exposure (≥12 hours of per week to unexposed) by participant subgroups of interest. For all outcomes, estimated 2-sided *P* values for the interactions between SHS exposure and the characteristics evaluated were computed using the Wald test. We did not evaluate effect measure modification of dichotomous outcomes due to limited power.

In the subsample of participants with urinary cotinine available (n=2,983), we evaluated the association of urinary cotinine with our three domains of cardiovascular disease. Urinary cotinine was modeled as a binary outcome: detectable vs. non-detectable urinary cotinine. Among the subset of participants with detectable urinary cotinine (n=299), we conducted linear regression analyses for continuous outcomes modeling cotinine as log-transformed.

We also ran several sensitivity analyses. First, we repeated models 2 and 3 for each outcome adjusting for alcohol use (n=3,962; data not shown), family history of CHD (n=4,713), heart rate (n=4,999), and education levels using three categorical variables (high school or less, some college but no degree/technical school certificate, associates degree/bachelors degree/graduate degree) instead of two. Second, we ran all analyses evaluating the association between SHS exposure and the 3 domains of CVD while defining SHS as binary (exposed or unexposed). Third, we ran all analyses comparing participants with ≥12 Hrs/week of SHS vs 1 Hr/week as the reference. Finally, all analyses were performed based on self-reported SHS exposure only, without using cotinine to exclude potential current smokers. For all sensitivity analyses, we observed similar patterns and inference to those in the main analysis (data not shown).

Statistical analyses were performed with Stata Version 13.0 (StataCorp, College Station, TX, USA) and R Version 3.03 (R Foundation for Statistical Computing, www.r-

project.org, Vienna, Austria). All statistical tests were two-sided, and *P*-values less than 0.05 were considered statistically significant.

Chapter 3: Results

3.1 Participant Characteristics. The median (interquartile range) of SHS exposure was 0 (0, 2) hours per week. 39.7% (n=1,997) of participants self-reported 1 hour or more of SHS exposure per week and 8.1% (n=407) reported 12 hours or more of SHS exposure per week. Former smokers comprised 41% of the study sample. Participants with higher SHS exposure were more likely to have lower income, be former smokers, have higher BMI, and have less education (Table 1). They also tended to have higher physical activity levels. Participants in the highest SHS exposure category were more likely to have hypertension, and higher hsCRP and IL-6 levels.

Table 1: Characteristics of 5,032 MESA Participants by Secondhand Smoke Exposure, 2000-2002.[a-c]

	Overall	Unexposed	1 Hr/Wk	2-3 Hrs/Wk	4-10 Hrs/Wk	≥12 Hrs/Wk	*P*-Value
N	**5,032**	**3,035**	**682**	**428**	**480**	**407**	
Sociodemographic Factors							
Men	46.0	44.1	50.0	47.4	53.3	43.2	<0.001
Age	62.5 (10.3)	63.9 (10.4)	59.8 (9.8)	61.1 (10)	60.5 (9.6)	60.5 (9.3)	<0.001
Race/Ethnicity							<0.001
White	39.5	35.3	50.6	43.7	44.2	41.5	
African-American	24.1	21.0	24.1	29.4	31.0	33.7	
Chinese-American	14.1	17.9	10.0	10.1	7.3	5.2	
Hispanic	22.4	25.9	15.4	16.8	17.5	19.7	
High school or less	35.0	38.1	22.0	30.4	33.8	40.0	<0.001
Less than $25,000/year	31.3	36.8	18.5	22.4	26.3	27.3	<0.001
Cardiovascular Disease Risk Factors							
Family History of CHD	41.2	39.7	43.5	44.3	44.9	42.2	0.14
Current alcohol use[†]	68.4	65.1	74.0	74.7	69.0	72.5	<0.001
Former Smokers	40.9	37.4	45.9	44.2	49.0	46.4	<0.001
BMI, kg/m^2	28.2 (5.4)	27.7 (5.4)	28.2 (5.2)	28.5 (5.3)	29.1 (5.6)	30.0 (5.7)	<0.001
Physical activity (MET-hrs/wk)	94.6 (97.9)	82.1 (80.3)	100.9 (102.8)	113.4 (131.3)	130.6 (130.6)	115.3 (104.3)	<0.001
Hypertension	44.5	45.5	39.0	43.2	43.3	48.4	0.01
Systolic blood pressure, mmHg	126.4 (21.4)	127.1 (21.9)	123.8 (20.1)	126.1 (20.9)	124.5 (19.8)	128.0 (21.5)	<0.001
Diabetes	11.8	12.3	7.6	14.0	11.7	13.3	0.005
Fasting glucose, mg/dL	96.7 (29.1)	97 (29.5)	93.3 (21.8)	96 (27)	98.2 (33.6)	98.9 (32)	0.01
Lipid lowering medications	16.6	17.3	13.9	18.2	15.8	14.5	0.14
Total cholesterol, mg/dL	194.3 (34.6)	193.6 (34.2)	196.2 (35)	193.2 (34.9)	195 (36.8)	196.2 (33.8)	0.47
LDL-C, mg/dL	117.6 (31.3)	116.9 (30.8)	119.1 (32.1)	118 (32.2)	118.4 (32.7)	118.3 (30.7)	0.47
Heart rate, bpm	62.9 (9.5)	63 (9.5)	61.7 (9.2)	63.1 (9.7)	63.4 (9.8)	63.7 (9.3)	<0.01
Urinary cotinine[†], ng/ml	10.9 (14.6)	8.8 (9.7)	11.2 (16.5)	9.8 (7.8)	15.4 (20.8)	22.4 (27.2)	<0.001
Detectable Urinary Cotinine[†]	10.0	4.6	10.5	9.4	22.2	36.9	<0.001
Inflammation Markers							
hsCRP, mg/L	1.8 (0.8, 4.0)	1.6 (0.7, 3.8)	1.8 (0.8, 3.8)	1.8 (0.8, 4.5)	1.9 (0.8, 4.2)	2.4 (1.1, 5.0)	0.04
hsCRP≥2, mg/L	45.7	43.5	45.3	48.1	48.1	57.0	<0.001

IL-6, pg/ml	1.5 (1.2)	1.5 (1.2)	1.4 (1)	1.5 (1.1)	1.4 (1.1)	1.6 (1.2)	0.01
Fibrinogen, mg/dL	343.9 (72.1)	346.5 (72.3)	339.5 (70.5)	338.2 (76.5)	335.4 (69.2)	347.9 (71)	<0.001
Subclincal Atherosclerosis Markers							
Internal cIMT, mm	1.05 (0.59)	1.05 (0.59)	1.00 (0.54)	1.05 (0.60)	1.05 (0.57)	1.10 (0.67)	0.19
Common cIMT, mm	0.87 (0.19)	0.87 (0.20)	0.85 (0.18)	0.87 (0.19)	0.86 (0.19)	0.88 (0.18)	0.03
CAC>0	49.2	51.6	41.9	47.9	48.3	45.7	<0.001
CAC≥75th percentile	25.0	26.8	20.1	21.3	24.6	24.6	0.002
Peripheral Arterial Disease Markers							
ABI≤0.9	2.9	3.1	1.9	3.5	2.1	3.4	0.31
ABI≥1.4	0.6	0.6	0.3	0.7	1.3	1.0	0.27
ABI≤0.9 or ABI≥1.4	3.52	3.62	2.20	4.21	3.33	4.42	0.27

Abbreviations: ABI, ankle brachial index; BMI, body mass index; CAC, coronary artery calcification; cIMT, carotid intima-media thickness; Hrs/Wk, hours per week; hsCRP, high-sensitivity c-reactive protein; IL-6, Interleukin-6; LDL-C, low density lipoprotein cholesterol; MET, metabolic equivalent.

[a]All values are mean (standard deviation), proportion (%), or median (IQR)

[b]P-values are differences between groups using one-way ANOVA, or Chi-square as appropriate

[c]All values are for the entire study sample except for current alcohol use (n=3962), urinary cotinine concentration (n=2983)

3.2 SHS and inflammation. After adjustment for age, gender, race/ethnicity, study site, education, income, hypertension, diabetes, LDL-C, treatment for dyslipidemia, physical activity, smoking status, and BMI, participants with ≥12 hours of SHS exposure per week compared to unexposed showed 26% and 11% higher hsCRP and IL-6 levels respectively and a statistically significant trend was observed across increasing categories of SHS exposure for both inflammatory markers (Table 2, model 2). The associations were markedly attenuated for both hsCRP and IL-6 after adjustment for BMI (model 3), and only the association with hsCRP remained statistically significant (geometric mean ratio: 1.14; 95% confidence interval: 1.02, 1.26). The odds ratio of hsCRP≥2 mg/L was 1.52 (95% confidence interval: 1.21, 1.90) before adjustment for BMI and 1.33 (95% confidence interval: 1.05, 1.69) after adjustment for BMI. No association was found between SHS exposure and fibrinogen.

Table 2: Association between Secondhand Smoke Exposure and Inflammation.

	Unexposed	1 Hr/Wk		2-3 Hrs/Wk		4-10 Hrs/Wk		≥12 Hrs/Wk		*P*-Trend
N	3,035	682		428		480		407		
		Value	95% CI	Value	95% CI	Value	95% CI	Value	95% CI	
GM Ratio of hsCRP, mg/L[†]										
Model 1	1 (Ref)	1.08	0.98, 1.19	**1.12**	**1.00, 1.26**	**1.13**	**1.02, 1.26**	**1.28**	**1.14, 1.43**	<0.001
Model 2	1 (Ref)	1.08	0.98, 1.18	**1.13**	**1.01, 1.26**	**1.14**	**1.02, 1.26**	**1.26**	**1.12, 1.41**	<0.001
Model 3	1 (Ref)	1.06	0.98, 1.16	**1.11**	**1.00, 1.23**	1.08	0.98, 1.19	**1.14**	**1.02, 1.26**	0.056
Odds Ratio of hsCRP≥2 mg/L										
Model 1	1 (Ref)	1.12	0.94, 1.34	1.20	0.97, 1.49	1.20	0.98, 1.48	**1.55**	**1.24, 1.93**	<0.001
Model 2	1 (Ref)	1.11	0.92, 1.32	1.21	0.98, 1.51	1.22	0.99, 1.51	**1.52**	**1.21, 1.90**	<0.001
Model 3	1 (Ref)	1.10	0.91, 1.34	1.20	0.96, 1.51	1.13	0.90, 1.40	**1.33**	**1.05, 1.69**	0.03
GM Ratio of IL-6, pg/ml [†]										
Model 1	1 (Ref)	1.00	0.95, 1.06	1.03	0.96, 1.10	0.99	0.93, 1.06	**1.11**	**1.03, 1.19**	0.002
Model 2	1 (Ref)	1.01	0.95, 1.06	1.03	0.97, 1.10	1.00	0.94. 1.06	**1.11**	**1.04, 1.18**	0.003
Model 3	1 (Ref)	1.00	0.95, 1.05	1.02	0.96, 1.08	0.97	0.92, 1.03	1.05	0.98, 1.11	0.188
GM Ratio of Fibrinogen, mg/dL[†]										
Model 1	1 (Ref)	1.00	0.99, 1.02	0.98	0.97, 1.00	0.98	0.97, 1.00	1.00	0.99, 1.03	0.407
Model 2	1 (Ref)	1.00	0.98, 1.02	0.98	0.96, 1.00	0.99	0.97, 1.01	1.01	0.99, 1.03	0.353
Model 3	1 (Ref)	1.00	0.98, 1.02	0.98	0.96, 1.00	**0.98**	**0.96, 0.99**	1.00	0.97, 1.02	0.764

Abbreviations: ABI, ankle brachial index; BMI, body mass index; CAC, coronary artery calcification; cIMT, carotid intima-media thickness; Hrs/Wk, hours per week; hsCRP, high-sensitivity c-reactive protein; IL-6, Interleukin-6; LDL-C, low density lipoprotein cholesterol; MET, metabolic equivalent.

[†]Log-transformed

[a]All values are expressed as Odds Ratios or Geometric Mean Ratios; with 95% confidence intervals

[b]Significant values (P<0.05) are presented in bold.

[c]For all quartiles of SHS exposure, reference category is unexposed (0 hours of SHS exposure per week).

[d]Model 1 is adjusted for age in years, gender (female(reference)/male), race/ethnicity (White(reference), African American, Chinese-American, Hispanic), clinic site(WFU(reference), COL, JHU, UMN, NWU, UCLA), education(high school or less (reference)/more than high school), and income (<$25,000/year (reference) / ≥$25,000/year).

[e]Model 2 is adjusted for model 1 variables plus hypertension (no(reference)/yes), diabetes (normal(reference) vs untreated diabetes/treated diabetes), LDL-C (mg/dL), treatment for dyslipidemia (no(reference)/yes), physical activity (MET-hrs/week), and smoking status (never(reference)/former).

[f]Model 3 is adjusted for model 2 variables plus BMI (kg/m^2)

3.3 SHS with subclinical atherosclerosis and peripheral arterial disease. Before adjustment for BMI, participants with ≥12 hours of SHS exposure per week showed higher internal cIMT (Geometric mean ratio: 1.04; 95% confidence interval: 1.00,1.09) compared to unexposed (Table 3, model 2). The magnitude of the association remained similar but not significant after adjustment for BMI (model 3). Common cIMT was associated with SHS exposure in the model adjusted for sociodemographics but not after further adjustment for CVD risk factors. SHS exposure was not associated with CAC; neither with detectable CAC or with CAC levels higher than the 75th percentile. SHS exposure was not associated with peripheral arterial disease defined as low (≤0.9), high (≥1.4), or both low and high ABI (≤0.9 and ≥1.4).

Table 3: Association of Secondhand Smoke Exposure With Subclinical Atherosclerosis and Peripheral Arterial Disease.[a-f]

	Unexposed	1 Hr/Wk		2-3 Hrs/Wk		4-10 Hrs/Wk		≥12 Hrs/Wk		*P*-Trend
N	**3,035**	**682**		**428**		**480**		**407**		
		Value	**95% CI**	**Value**	**95% CI**	**Value**	**95% CI**	**Value**	**95% CI**	
GM Ratio of Internal cIMT, mm[†]										
Model 1	1 (Ref)	1.01	0.97, 1.05	1.02	0.98, 1.07	1.02	0.98, 1.06	**1.06**	**1.01, 1.10**	0.015
Model 2	1 (Ref)	1.00	0.97, 1.04	1.01	0.97, 1.05	1.01	0.97, 1.05	**1.04**	**1.00, 1.09**	0.051
Model 3	1 (Ref)	1.00	0.97, 1.04	1.01	0.97, 1.05	1.01	0.97, 1.05	1.04	0.99, 1.08	0.088
GM Ratio of Common cIMT, mm[†]										
Model 1	1 (Ref)	1.00	0.98, 1.02	1.01	0.99. 1.03	1.01	0.98, 1.03	**1.03**	**1.01, 1.05**	0.012
Model 2	1 (Ref)	1.00	0.98, 1.02	1.01	0.99, 1.03	1.01	0.98, 1.02	1.02	1.00, 1.04	0.056
Model 3	1 (Ref)	1.00	0.99, 1.02	1.00	0.99, 1.02	0.99	0.98, 1,02	1.01	0.99, 1.03	0.215
Odds Ratio of CAC>0										
Model 1	1 (Ref)	**0.81**	**0.67, 0.99**	1.05	0.83, 1.33	1.05	0.84, 1.32	1.04	0.82, 1.33	0.53
Model 2	1 (Ref)	**0.80**	**0.65, 0.98**	1.00	0.79, 1.27	1.00	0.79, 1.26	0.99	0.77, 1.27	0.83
Model 3	1 (Ref)	**0.80**	**0.65, 0.98**	0.99	0.78, 1.26	0.98	0.77, 1.23	0.95	0.74, 1.21	0.88
Odds Ratio of CAC≥75th percentile										
Model 1	1 (Ref)	0.82	0.65, 1.05	0.84	0.64, 1.12	1.06	0.82, 1.38	1.23	0.93, 1.62	0.08
Model 2	1 (Ref)	0.81	0.64, 1.03	0.78	0.59, 1.05	1.00	0.77, 1.30	1.16	0.87, 1.54	0.17
Model 3	1 (Ref)	0.81	0.63, 1.03	0.79	0.59, 1.05	0.98	0.75, 1.28	1.13	0.85, 1.50	0.24
Odds Ratio of ABI≤0.9										
Model 1	1 (Ref)	0.87	0.47, 1.61	1.27	0.71, 2.27	0.76	0.38, 1.50	1.23	0.67, 2.24	0.55
Model 2	1 (Ref)	0.91	0.49, 1.69	1.21	0.67, 2.19	0.80	0.40, 1.60	1.23	0.67, 2.26	0.53
Model 3	1 (Ref)	0.91	0.49, 1.71	1.21	0.67, 2.18	0.82	0.41, 1.65	1.27	0.69, 2.33	0.47
Odds Ratio of ABI≥1.4										
Model 1	1 (Ref)	0.42	0.09, 1.86	1.06	0.30, 3.69	1.90	0.72, 5.01	1.71	0.55, 5.29	0.22
Model 2	1 (Ref)	0.44	0.10, 1.97	0.98	0.28, 3.46	1.83	0.68, 4.91	1.71	0.54, 5.35	0.23
Model 3	1 (Ref)	0.44	0.10, 1.97	0.98	0.28, 3.47	1.76	0.65, 4.75	1.62	0.52, 5.12	0.27
Odds Ratio of ABI≤0.9 or ABI≥1.4										
Model 1	1 (Ref)	0.74	0.42, 1.30	1.21	0.71, 2.05	0.95	0.55, 1.66	1.29	0.76, 2.19	0.309

Model 2	1 (Ref)	0.76	0.43, 1.34	1.12	0.66, 1.92	0.97	0.55, 1.70	1.26	0.74, 2.16	0.350
Model 3	1 (Ref)	0.76	0.43, 1.35	1.12	0.77, 1.92	0.98	0.56, 1.72	1.28	0.75, 2.19	0.327

Abbreviations: ABI, ankle brachial index; BMI, body mass index; CAC, coronary artery calcification; cIMT, carotid intima-media thickness; Hrs/Wk, hours per week; hsCRP, high-sensitivity c-reactive protein; IL-6, Interleukin-6; LDL-C, low density lipoprotein cholesterol; MET, metabolic equivalent.

[†]Log-transformed

[a]All values are expressed as Odds Ratios or Geometric Mean Ratios; with 95% confidence intervals

[b]Significant values ($P<0.05$) are presented in bold.

[c]For all quartiles of SHS exposure, reference category is unexposed (0 hours of SHS exposure per week).

[d]Model 1 is adjusted for age in years, gender (female(reference)/male), race/ethnicity (White(reference), African American, Chinese-American, Hispanic), clinic site(WFU(reference), COL, JHU, UMN, NWU, UCLA), education(high school or less (reference)/more than high school), and income (<$25,000/year (reference) / ≥$25,000/year).

[e]Model 2 is adjusted for model 1 variables plus hypertension (no(reference)/yes), diabetes (normal(reference) vs untreated diabetes/treated diabetes), LDL-C (mg/dL), treatment for dyslipidemia (no(reference)/yes), physical activity (MET-hrs/week), and smoking status (never(reference)/former).

[f]Model 3 is adjusted for model 2 variables plus BMI (kg/m^2).

3.4 Effect measure modification. For fibrinogen, the lack of association with SHS exposure remained consistent across participant subgroups evaluated (data not shown). For hsCRP and IL-6, we found no evidence of interaction by participant characteristics, except for IL-6 by study site, with a markedly stronger association in Los Angeles compared to other sites (Geometric mean ratio: 1.40, 95% confidence interval 1.14-1.72, *P*-interaction=0.03) (Figures 2 and 3). The association between SHS exposure and carotid IMT (common cIMT and internal cIMT) was also consistent across most sub-groups evaluated, except for internal cIMT by age (*P*-interaction=0.01) (Figures 4 and 5).

Figure 2: Geometric Mean Ratios of hsCRP Comparing Quartile 4 of SHS to Unexposed, Stratified by Participant Characteristics.

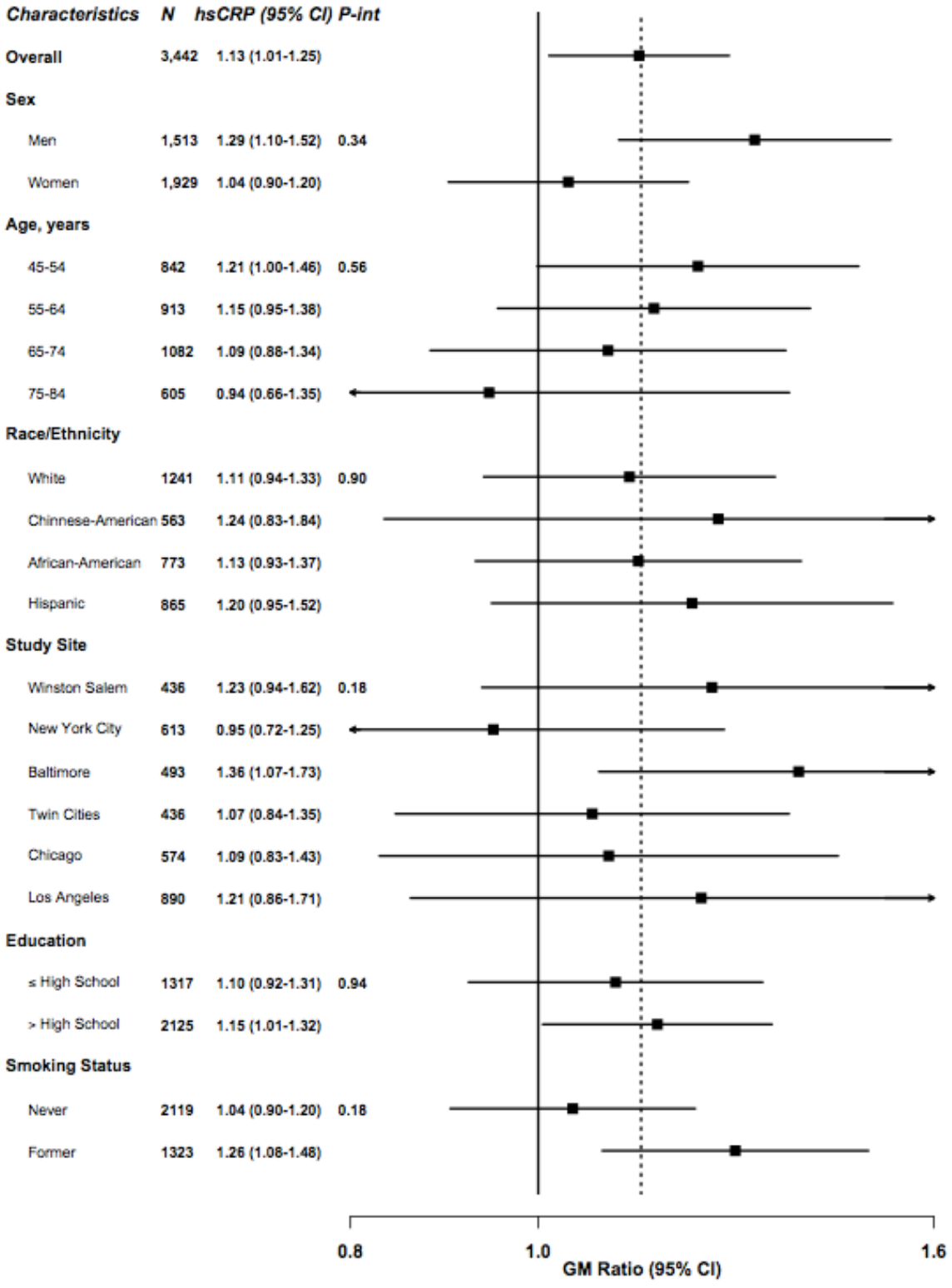


Figure 3: Geometric Mean Ratios of IL-6 Comparing Quartile 4 of SHS to Unexposed, Stratified by Participant Characteristics.

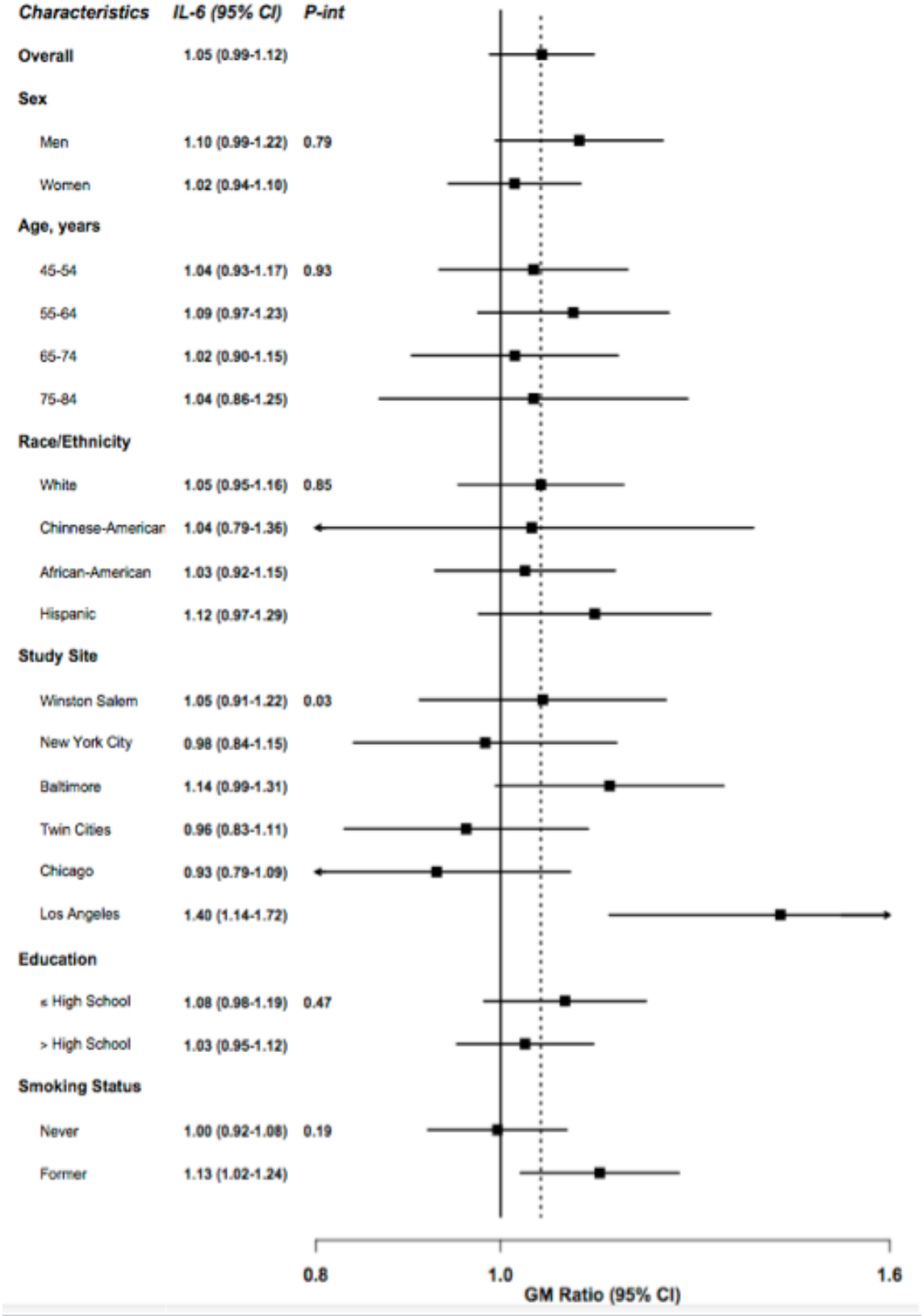


Figure 4: Geometric Mean Ratios of Common cIMT Comparing Quartile 4 of SHS to Unexposed, Stratified by Participant Characteristics.

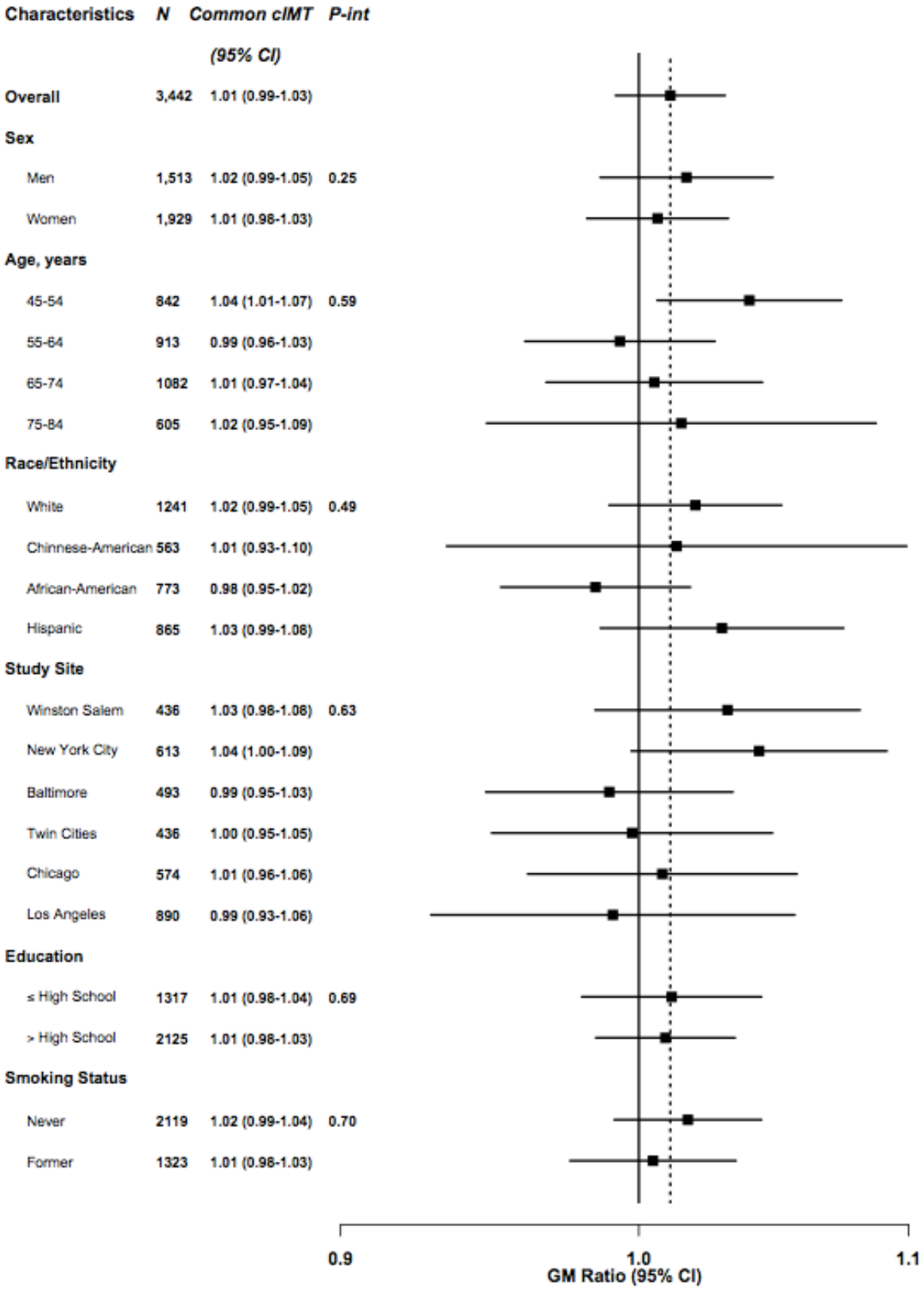
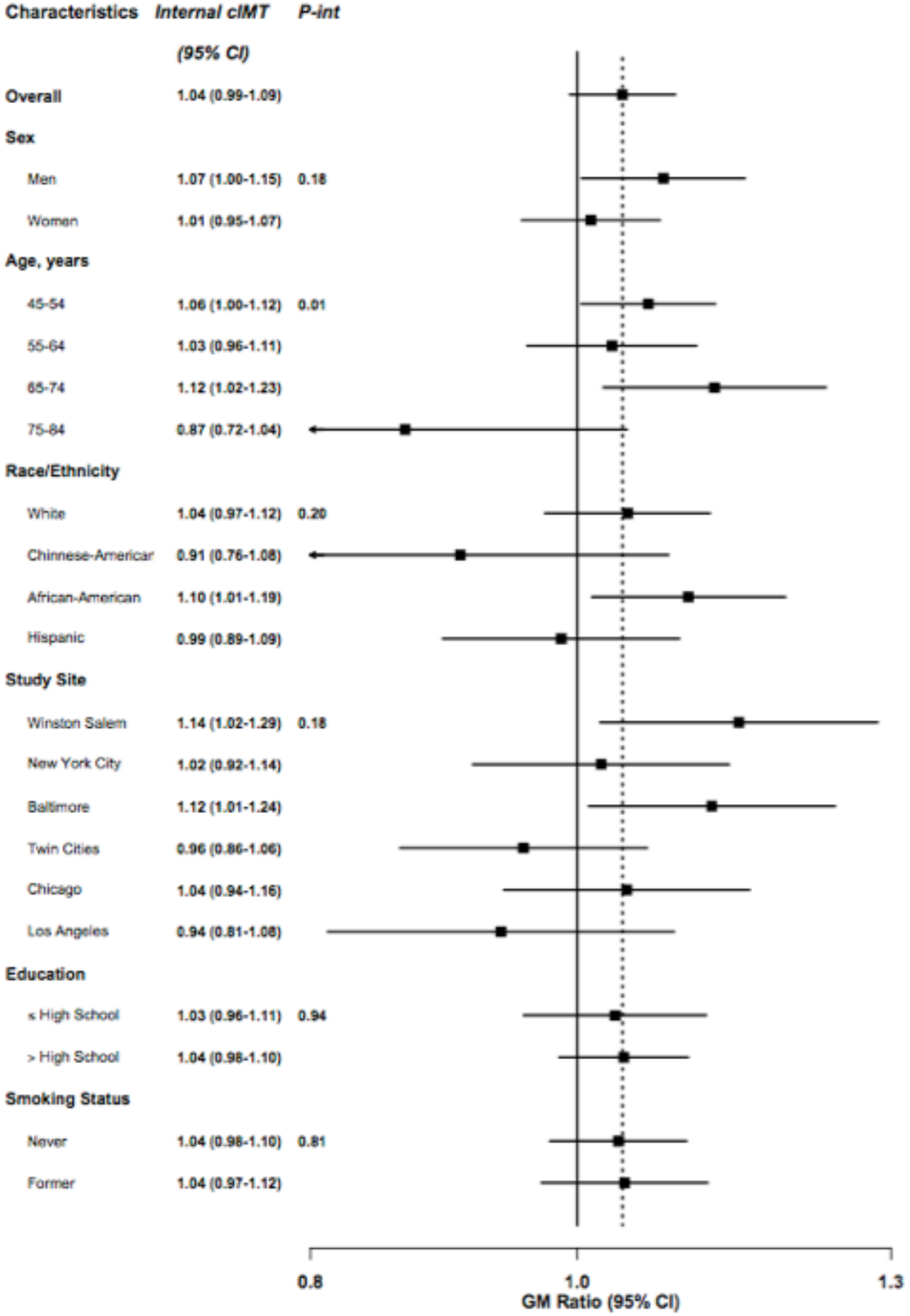


Figure 5: Geometric Mean Ratios of Internal cIMT Comparing Quartile 4 of SHS to Unexposed, Stratified by Participant Characteristics.



3.5 Urinary cotinine. We found no fully adjusted association between detectable urinary cotinine with inflammatory or subclinical atherosclerosis markers (Table 4). For peripheral arterial disease, the fully adjusted odds ratio for ABI ≤0.9 or ABI≥1.4 was 2.01 (95% confidence interval: 1.13, 3.90) (Table 4, model 3). Among those with detectable urinary cotinine (n=299), we found no associations between log-transformed cotinine levels and continuous outcome measures (Table 5), although the geometric mean ratios were positive and consistent with our findings based on self-reported SHS exposure for hsCRP and IL-6.

Table 4: Association of Detectable Urinary Cotinine with Three Domains of Cardiovascular Disease.[a-f]

	Model 1		Model 2		Model 3	
N=2,983	**Value**	**95% CI**	**Value**	**95% CI**	**Value**	**95% CI**
Inflammation Markers						
GM Ratio of hsCRP, mg/L[†]	1.12	0.98, 1.28	1.10	0.97, 1.25	1.01	0.90, 1.14
Odds Ratio of hsCRP≥2 mg/L[†]	1.11	0.86, 1.43	1.04	0.08, 1.35	0.91	0.69, 1.21
GM Ratio of IL-6, pg/ml[†]	1.07	0.99, 1.15	1.06	0.98, 1.14	1.01	0.94, 1.08
GM Ratio of Fibrinogen, mg/dL[†]	0.98	0.96, 1.01	0.99	0.96, 1.01	**0.98**	**0.95, 0.99**
Subclinical Atherosclerosis Markers						
GM Ratio of Internal cIMT, mm[†]	**1.07**	**1.02, 1.12**	1.05	0.99, 1.10	1.04	0.99, 1.10
GM Ratio of Common cIMT, mm[†]	1.02	0.99, 1.04	1.01	0.99, 1.03	1.00	0.98, 1.02
Odds Ratio of CAC>0	1.10	0.82, 1.43	1.01	0.76, 1.34	0.99	1.74, 1.30
Odds Ratio of CAC≥75th percentile	1.07	0.78, 1.48	0.99	0.71, 1.38	0.97	0.60, 1.34
Peripheral Arterial Disease Markers						
Odds Ratio of ABI≤0.9	**2.23**	**1.10, 4.49**	1.96	0.96, 4.02	2.05	0.98, 4.29
Odds Ratio of ABI≥1.4	1.89	0.60, 5.93	1.81	0.56, 5.82	1.76	0.54, 5.70
Odds Ratio of ABI≤0.9 or ABI≥1.4	**2.15**	**1.18, 3.91**	**2.01**	**1.09, 3.70**	**2.01**	**1.13, 3.90**

Abbreviations: ABI, ankle brachial index; BMI, body mass index; CAC, coronary artery calcification; cIMT, carotid intima-media thickness; Hrs/Wk, hours per week; hsCRP, high-sensitivity c-reactive protein; IL-6, Interleukin-6; LDL-C, low density lipoprotein cholesterol; MET, metabolic equivalent.

[†]Log-transformed

[a]All values are expressed as Odds Ratios or Geometric Mean Ratios; with 95% confidence intervals

[b]Significant values (P<0.05) are presented in bold.

[c]For all quartiles of SHS exposure, reference category is unexposed (0 hours of SHS exposure per week).

[d]Model 1 is adjusted for age in years, gender (female(reference)/male), race/ethnicity (White(reference), African American, Chinese-American, Hispanic), clinic site(WFU(reference), COL, JHU, UMN, NWU, UCLA), education(high school or less (reference)/more than high school), and income (<$25,000/year (reference) / ≥$25,000/year).

[e]Model 2 is adjusted for model 1 variables plus hypertension (no(reference)/yes), diabetes (normal(reference) vs untreated diabetes/treated diabetes), LDL-C (mg/dL), treatment for dyslipidemia (no(reference)/yes), physical activity (MET-hrs/week), and smoking status (never(reference)/former).

[f]Model 3 is adjusted for model 2 variables plus BMI (kg/m^2).

Table 5: Association of Urinary Cotinine (Log Transformed) with Three Domains of Cardiovascular Disease.[a-f]

	Model 1		Model 2		Model 3	
N=299	**Value**	**95% CI**	**Value**	**95% CI**	**Value**	**95% CI**
Inflammation Markers						
GM Ratio of hsCRP, mg/L[†]	1.09	0.89, 1.34	1.06	0.87, 1.30	1.05	0.87, 1.27
GM Ratio of IL-6, pg/ml[†]	1.09	0.97, 1.23	1.09	0.96, 1.28	1.08	0.97, 1.21
GM Ratio of Fibrinogen, mg/dL[†]	0.99	0.96, 1.04	0.99	0.95, 1.03	0.99	0.95, 1.03
Subclinical Atherosclerosis Markers						
GM Ratio of Internal cIMT, mm[†]	1.02	0.94, 1.11	1.01	0.93, 1.10	1.01	0.93, 1.10
GM Ratio of Common cIMT, mm[†]	1.02	0.98, 1.06	1.01	0.98, 1.05	1.01	0.98, 1.05

Abbreviations: cIMT, carotid intima-media thickness; hsCRP, high-sensitivity c-reactive protein; IL-6, Interleukin-6

[†]Log-transformed

[a]All values are expressed as Geometric Mean Ratios with 95% confidence intervals

[b]Significant values ($P<0.05$) are presented in bold.

[c]For all quartiles of SHS exposure, reference category is unexposed (0 hours of SHS exposure per week).

[d]Model 1 is adjusted for age in years, gender (female(reference)/male), race/ethnicity (White(reference), African American, Chinese-American, Hispanic), clinic site(WFU(reference), COL, JHU, UMN, NWU, UCLA), education(high school or less (reference)/more than high school), and income (<$25,000/year (reference) / ≥$25,000/year).

[e]Model 2 is adjusted for model 1 variables plus hypertension (no(reference)/yes), diabetes (normal(reference) vs untreated diabetes/treated diabetes), LDL-C (mg/dL), treatment for dyslipidemia (no(reference)/yes), physical activity (MET-hrs/week), and smoking status (never(reference)/former).

[f]Model 3 is adjusted for model 2 variables plus BMI (kg/m^2).

Chapter 4: Discussion

In this ethnically diverse cohort across six urban settings in the United States, self-reported SHS exposure was positively associated with hsCRP and maybe with IL-6 and internal cIMT. The associations with hsCRP and IL-6 were markedly attenuated after adjustment for body mass index and only the association with hsCRP remained significant after adjustment for BMI. Internal cIMT was only marginally associated with SHS exposure among those in the highest category of SHS exposure in our study (12 hours or more of SHS exposure per week) after adjustment for sociodemographic and CVD risk factors. SHS exposure in this study was not associated with fibrinogen, common cIMT, CAC, and peripheral arterial disease. In a subset of participants with urinary cotinine available, detectable cotinine was associated with peripheral arterial disease (ABI≤0.9 or ABI≥1.4) but not with the other subclinical biomarkers evaluated.

In our study, SHS exposure was associated with hsCRP, evaluated as both a binary and continuous log-transformed outcome, even after adjusting for sociodemographic risk factors, CVD risk factors, and BMI. Several other studies assessing the relationship between SHS and hsCRP have been published. Among adults most studies found an association between SHS exposure and hsCRP levels,[29,31-34,36] although a few studies failed to find a significant association.[28,30,35] Among children and adolescents a positive association was found in NHANES,[26] but not in other smaller studies.[23-25] These results persisted with various classifications of secondhand smoke exposure including comparing exposed participants to unexposed, and quartile 4 to quartile 1 of SHS exposure.

The association between SHS exposure and hsCRP was markedly attenuated in our study after adjustment for BMI. This attenuation may be explained by the well-documented positive relationship between hsCRP and BMI[57-61] and could be related to confounding. Indeed, SHS exposure and obesity disproportionately co-occur in population groups with lower levels of socioeconomic status. Alternatively, the attenuation of the association after adjustment for BMI could be related to mediation. The possibility of mediation is supported by experimental and epidemiologic evidence showing that SHS exposure is associated with higher adiposity and obesity levels, although the causality of the association is still under debate. Consistent with our findings, the positive association between SHS exposure and hsCRP levels was completely attenuated after adjustment for BMI in 479 women in the Norwegian Mother and Child Cohort Study.[27] HsCRP has long been identified as a marker of inflammation and a major player in the primary prevention of clinical cardiovascular disease.[62]

Our findings for fibrinogen are mostly inconsistent with other studies conducted. Greek[34], Japanese[37], Scottish[33], and American[30,32,35] cohort studies have demonstrated significant positive association between SHS exposure and fibrinogen. These studies have measured SHS exposure by self-reported presence and duration of SHS exposure and objectively by cotinine levels. Nevertheless, the one study that did not find a signfigant association with fibrinogen, evaluated SHS exposure both by self-report and also by detectable serum cotinine.[28]

Similarly to fibrinogen, our favorable marginal associations for IL-6 are also not consistent with other studies evaluating the relationship between IL-6 and SHS exposure, as their findings were generally null.[28,29,32] The value of assessing hsCRP, IL-6, and

fibrinogen for CVD event prediction has been debated. While the evidence for the usefulness of hsCRP in the global assessment of individual cardiovascular risk seems to be conclusive[63-66], a consensus has not been reached for the value of assessing fibrinogen for CVD event prediction.[67] Moreover, fibrinogen has been identified as a weak marker of thrombosis, and the effect of fibrinogen independently predicting BMI is minimal.[68]

There have been studies suggesting an association between secondhand smoke with subclinical atherosclerosis and peripheral arterial disease. Few studies that have evaluated the association between SHS exposure and peripheral arterial disease have shown and they have shown generally inconsistent findings. For example, among a cohort of 1209 women in China, a dose response relationship between SHS exposure and prevalent peripheral arterial disease was found,[20] while in an NHANES 1994-2004 study no overall association was found.[21] Furthermore, in a cohort of adult non-smokers from the Scottish Family Study, exposure to ≥40 hours of SHS per week was found to be significantly associated with increased risk of prevalent peripheral arterial disease (Odds ratio 5.56; 95% confidence interval: 1.82–17.06, *P*-value = 0.003).[22]

To place our findings for measures of subclinical atherosclerosis into perspective, one cross-sectional analysis examining exposure to SHS and CAC found that, after adjustment for sociodemographic and CVD risk factors, self-reported SHS exposure was associated with presence of CAC (Odds ratio: 1.38; 95% confidence interval: 1.03, 1.84) in a cohort of 1,766 never-smokers 45-75 years of age in Germany without clinically manifested coronary heart disease.[19] While another similar study found an odds ratio of 1.93 (95% confidence interval: 1.49, 2.51) for high SHS exposure in a cohort of 3,098 never smokers 40-80 years of age.[17] Not only has CAC been shown to be highly

predictive of future cardiovascular events in MESA[69], but also in other studies.[70,71] Furthermore, several studies have demonstrated increased cIMT levels with increasing levels of SHS exposure, although none of these studies used objective measurements of SHS exposure and most were conducted several decades ago.[14-16,18]

In our analysis, the main question used to assess SHS exposure presents as a limitation of this study as this may be a relatively crude assessment of SHS exposure and may not distinguish between recent and life-long exposure. The difficulty of assessing secondhand smoke exposure and the importance of accurate measurement of SHS exposure to assess disease risk has been extensively reviewed,[4]exposure to SHS may be assessed through biomarkers[41] or questionnaires.[72] Nicotine and its metabolites are commonly used to assess recent SHS exposure. Urinary cotinine is commonly used to differentiate between active smoking and SHS exposure, but it can be limited when quantifying SHS exposure levels. Although serum and saliva cotinine are generally preferred to quantify recent SHS exposure, they can be costly for large epidemiologic studies. While self-reported measures of SHS can be affected by substantial measurement error, they provide an important tool to assess the long-term and short-term health effects of SHS exposure in large epidemiologic studies.[72] Limitations for SHS exposure assessment with self-report methods include false reporting, over/or under-reporting, inaccurate participant recall of SHS exposure episodes, and duration of the assessment period, and possibilities of type errors when estimating risk.[72] Nevertheless, it has also been suggested that objective measures of SHS, namely using urinary cotinine are not error-free methods.[73-75]

Other potential limitations of this study merit consideration: (1) secondhand smoke exposure was modeled as a fixed exposure (measured at baseline) because data on SHS exposure from subsequent MESA exams was limited, (2) there is a time mismatch between self-reported SHS exposure over the past year with cotinine measurements reflecting recent (past 24 hours of exposure), (3) even though we preformed cotinine reclassification in half the cohort exposure misclassification for smoking status may still be possible among study participants. Nevertheless, results of sensitivity analyses without cotinine reclassification were highly consistent with our main analyses (data not shown), (4) urinary cotinine was only available for a subset of participants, (5) although we assessed the association of SHS exposure with hsCRP and fibrinogen, our study lacks other biomarkers of thrombosis, (6) we had outcome measurements at only one time point (baseline), and (7) residual confounding may remain a problem.

Strengths of this study include using urinary coting in combination with self-reported hours of secondhand smoke exposure to characterize SHS exposure per week, the large ethnically diverse modern cohort, and rigorous measurements of CVD risk factors, cotinine, and other sociodemographic risk factors.

Our study has several important public health implications. Although secondhand smoke exposure in the United States has decreased in recent years, measureable cotinine levels have been found in 25 % of nonsmokers and two out of every five children ages 3 to 11 were exposed to secondhand smoke regularly in 2011-2012.[76] This still represents approximately 100 million American non-smokers potentially exposed to SHS; and therefore even a marginal cardiovascular risk with increased SHS exposure levels has important population level implications. Therefore, the issue of SHS exposure assessment

warrants additional investigation. Standard measures of long-term SHS exposure need to be developed; and a specific combination of self-reported and objective measurements (such as serum or urinary cotinine) need to be identified for epidemiologic studies. Reliable indicators for SHS exposure need to be additionally identified for future analyses. Once reliable indicators and standard measures have been identified, the effect of smoke-free bans and expansion of smoke-free laws needs to be explored.

In conclusion, these results suggest that SHS exposure may increase the risk of CVD by influencing inflammation, atherosclerosis, and peripheral arterial disease pathways. Despite limited exposure assessment, this study supports the association of SHS exposure with hsCRP, and maybe with IL-6, internal cIMT, and peripheral arterial disease.

Studies relating SHS exposure with markers of subclinical cardiovascular disease in ethnically diverse modern cohorts are lacking. This study presents novel data on the association between SHS exposure and subclinical CVD biomarkers in a sample of U.S adults from six urban settings. SHS exposure assessment based on self-report and on a biomarker that was undetectable in most participants, was limited and may have resulted in substantial non-differential measurement error and regression dilution bias. Additional research, improving SHS exposure assessment, for instance by measuring serum cotinine, a more sensitive and precise biomarker of SHS exposure would be needed to further our understanding of the harmful effects of secondhand smoke exposure and to explain the mechanisms underlying the cardiovascular benefits of expanding smoke-free laws.

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Appendix A

This is the STATA code for Tables 1-5, and Supplementary Table in Chapters 2 and 3.

```
*******************************************************************************
*
* SHS and CVD: MESA
* JHU Masters Thesis
* Hoda Magid
*
* Data Analysis
*
*******************************************************************************

cd "/Users/hodamagid/Dropbox/JHU Thesis/HMagid Thesis Data Analysis"
set more off
capture log close
clear all

log using "HMagid Thesis Data Analysis.log", replace

use "HMagid MESA Thesis Dataset.dta", clear

*******************************************************************************
**************************** Table 1 ******************************************
*******************************************************************************

****************
** Covariates **
****************
* Gender
tab2 shscat gender1, row chi2

* Age
summarize age1c
bys shscat: summarize age1c
anova age1c shscat

* Age Category
tab agecat1c
tab2 shscat agecat1c, row
anova agecat1c shscat

* Race
tab race1c
tab2 shscat race1c, row chi2

* Study Site
tab site1c
tab2 shscat site1c, row chi2

* Education
tab educ1
bys shscat: tab educ1

* Less Highschool
gen educ1cat=.
replace educ1cat=0 if educ1==0 // 0 if  highschool or less
replace educ1cat=0 if educ1==1
replace educ1cat=0 if educ1==2
replace educ1cat=0 if educ1==3
replace educ1cat=1 if educ1==4 // 1 higher than highschool
replace educ1cat=1 if educ1==5
replace educ1cat=1 if educ1==6
replace educ1cat=1 if educ1==7
replace educ1cat=1 if educ1==8
label var educ1cat "Education Category"
label define educ1cat 0 "Highschool or Less" 1 "Higher than Highschool"
label values educ1cat educ1cat
tab2 shscat educ1cat, row
```

```
anova educ1cat shscat

* Education based on more categories
gen educ1cat2=.
replace educ1cat2=0 if educ1==0 // 0 if  highschool or less
replace educ1cat2=0 if educ1==1
replace educ1cat2=0 if educ1==2
replace educ1cat2=0 if educ1==3
replace educ1cat2=1 if educ1==4 // 1 if Some College (but no degree) & technical school
certificate
replace educ1cat2=1 if educ1==5
replace educ1cat2=2 if educ1==6 // 2 if AA, BA, or grad school
replace educ1cat2=2 if educ1==7
replace educ1cat2=2 if educ1==8
label var educ1cat "Education Category"
label define educ1cat2 0 "Highschool or Less" 1 "Some College/Technical School
Certificate" 2 "AA, BA, or Grad School"
label values educ1cat2 educ1cat2
tab2 shscat educ1cat2, row
anova educ1cat2 shscat

* Less than $25,000 per year
gen income1cat=.
replace income1cat=0 if income1==1 // 0 if less than $25K/year
replace income1cat=0 if income1==2
replace income1cat=0 if income1==3
replace income1cat=0 if income1==4
replace income1cat=0 if income1==5
replace income1cat=0 if income1==6
replace income1cat=1 if income1==7 // 1 $25K/year or higher
replace income1cat=1 if income1==8
replace income1cat=1 if income1==9
replace income1cat=1 if income1==10
replace income1cat=1 if income1==11
replace income1cat=1 if income1==12
replace income1cat=1 if income1==13
label var income1cat "Income Category"
label define income1cat 0 "Less than $25K/year " 1 "$25K/year or higher"
label values income1cat income1cat
tab2 shscat income1cat, row
kwallis shscat, by(income1cat)

* Current Alcohol Use
tab2 shscat curalc1, row chi2

* Former smoking status
tab2 shscat cig1c, row chi2

* BMI
summarize bmi1c
bys shscat: summarize bmi1c
anova bmi1c shscat

* Moderate and Vigorous Physical Activity Total (MET-min/wk M-Su)
summarize pamvcm1c

* Moderate and Vigorous Physical Activity Total (MET-hours/wk M-Su)
gen pamvcm1chr = pamvcm1c / 60
summarize pamvcm1chr
bys shscat: summarize pamvcm1chr
anova pamvcm1chr shscat

* HTN
tab2 shscat htn1c, row chi2

* Family History of MI (Parent or Sibling)
tab2 shscat fhha1c, row chi2

* SBP
bys shscat: summarize sbp1c
anova sbp1c shscat
```

```
* HTN Medication
*tab2 shscat htnmed1c, row chi2

* Diabetes
tab dm031c
gen dm031ccat=.
replace dm031ccat=0 if dm031c==0 // 0 if Normal
replace dm031ccat=0 if dm031c==1 // 1 if ifg, untreated diabetes, treated diabetes
replace dm031ccat=1 if dm031c==2
replace dm031ccat=1 if dm031c==3
label var dm031ccat "Diabetes Category"
label define dm031ccat 0 "No Diabetes or IFG " 1 "Untreated, Treated Diabetes"
label values dm031ccat dm031ccat
tab2 shscat dm031ccat, row chi2

* Fasting Glucose
summarize glucos1c
bys shscat: summarize glucos1c
anova glucos1c shscat

* Any Lipid Lowering Medication
tab2 shscat lipid1c, row chi2

* Total Cholestrol
summarize chol1
bys shscat: summarize chol1
anova shscat chol1

* LDL-C
summarize ldl1
bys shscat: summarize ldl1
anova ldl1 shscat

* HDL-C
* hdl1
*bys shscat: summarize hdl1
*anova hdl1 shscat

* Triglycerides
*summarize trig1
*bys shscat: summarize trig1
*anova trig1 shscat

* Heart rate
summarize hrtrate1
bys shscat: summarize hrtrate1
anova hrtrate1 shscat

* Calculated urinary mean cotinine concentration (ng/ml)
summarize CotcncAC
bys shscat: summarize CotcncAC
anova CotcncAC shscat

* Creating 2 categories of Urinary Cotinine among never and former
// Calculated mean cotinine concentration (ng/ml)
codebook CotcncAC // 90th percentile overall is 16.3
summ CotcncAC, detail
bys shscat: summ CotcncAC, detail
gen cot1=0 if CotcncAC<16.3
replace cot1=1 if CotcncAC>=16.3 & CotcncAC!=.
label var cot1 "Cotinine Category (Overall)"
label define cot1 0 "Cot<90th" 1 "Cot>=90th"
label values cot1 cot1
tab2 shscat cot1, row chi2

* Log Transform CotcncAC for those with detectable cotinine
gen logcot=.
replace logcot=ln(CotcncAC) if cot1==1

* Pack Years
```

```
*summarize pkyrs1c
*bys shscat: summarize pkyrs1c
*anova pkyrs1c shscat

* Live with a smoker as a child
tab2 shscat qsmkada4, row chi2

* Number of smokers in home as a child
* bys shscat: summarize qsmkcna4
* anova shscat qsmkcna4

* Live with a smoker as an adult
tab2 shscat qsmkada4, row chi2

* Years Living with adult smoker
* bys shscat: summarize qsmkana4
* anova shscat qsmkana4

* Work with smokers
* tab2 shscat qsmkwa4, row chi2

* Years working with smokers
* bys shscat: summarize qsmkwya4
* anova shscat qsmkwya4

********************
** Crude Outcomes **
********************
*hsCRP // Continous
summarize crp1, detail
* detection level for CRP is 0.18 mg/L
gen crpdetect=.
replace crpdetect=0 if crp1>0.18
replace crpdetect=1 if crp1<0.18
tab crpdetect

bys shscat: summarize crp1, detail
anova crp1 shscat
* Generating log CRP
gen logcrp=ln(crp1)
label var logcrp "Log(hs-CRP)"

*hsCRP>=2 // Binary
gen crp1cat=.
replace crp1cat=0 if crp1<2
replace crp1cat=1 if crp1>=2 & crp1!=.
label var crp1cat "hsCRP>=2 Category"
label define crp1cat 0 "hsCRP<2" 1 "hsCRP>=2"
label values crp1cat crp1cat
tab2 shscat crp1cat, row chi2

*IL-6 // Continous
summarize il61,
bys shscat: summarize il61
anova il61 shscat
* Generating Log IL6
gen logil61=ln(il61)
label var logil61 "Log(IL-6)"

* detection level for IL-6 is 0.18 mg/L
gen crpdetect=.
replace crpdetect=0 if crp1>0.18
replace crpdetect=1 if crp1<0.18
tab crpdetect

*Fibrinogen // Continous
summarize fib1
bys shscat: summarize fib1
anova fib1 shscat
* Generating Log Fibrinogen
gen logfib1=ln(fib1)
```

```
label var logfib1 "Log(Fibrinogen)"
* detection level for Fibrinogen is 0.18 mg/L
gen crpdetect=.
replace crpdetect=0 if crp1>0.18
replace crpdetect=1 if crp1<0.18
tab crpdetect

* need to check if log transforming improves normality // yes it does
hist fib1
hist logfib1

*Internal cIMT // Continous
summarize maxint1c
bys shscat: summarize maxint1c
anova maxint1c shscat
* Generating Log Internal cIMT
gen logint1=ln(maxint1c)
label var logint1 "Log(Internal cIMT)"
* need to check if log transforming improves normality // yes it does
hist maxint1c
hist logint1

*Common cIMT // Continous
summarize maxcom1c
bys shscat: summarize maxcom1c
anova maxcom1c shscat
* Generating Log Internal cIMT
gen logcom1=ln(maxcom1c)
label var logcom1 "Log(Common cIMT)"

// need to check if log transforming improves normality // it does
hist maxcom1c
hist logcom1

* Low (<1) ABI // Binary
gen abi1low=.
replace abi1low=0 if abi1c>1 & abi1c!=.
replace abi1low=1 if abi1c<=1 & abi1c!=.
label var abi1low "ABI Category (<=1)"
label define abi1low 0 "ABI>1" 1 "ABI<=1"
label value abi1low abi1low
tab2 shscat abi1low, row chi2

* Low2 (<0.9) ABI // Binary
gen abi1low2=.
replace abi1low2=0 if abi1c>0.9 & abi1c!=.
replace abi1low2=1 if abi1c<=0.9 & abi1c!=.
label var abi1low2 "ABI Category (<=0.9)"
label define abi1low2 0 "ABI>0.9" 1 "ABI<=0.9"
label value abi1low2 abi1low2
tab2 shscat abi1low2, row chi2

*High(≥1.40) ABI // Binary
gen abi1high=.
replace abi1high=0 if abi1c<1.40 & abi1c!=. // 0 if they don't have the outcome (they are
<1.40)
replace abi1high=1 if abi1c>=1.40 & abi1c!=. // 1 if they do have the outcome (they are
>=1.40)
label var abi1high "ABI Category (>=1.40)"
label define abi1high 0 "ABI<1.40" 1 "ABI>=1.40"
label value abi1high abi1high
tab2 shscat abi1high, row chi2

* Combine ABI<0.9 and ABI>1.4 as one outcome variable
gen abi1combined=.
replace abi1combined=0 if abi1c>0.9
replace abi1combined=0 if abi1c<1.40
replace abi1combined=1 if abi1c<=0.9
replace abi1combined=1 if abi1c>=1.40
label var abi1combined "ABI Combined Category"
label define abi1combined 0 "ABI>0.9 or ABI<1.40" 1 "ABI<=0.9 or ABI>=1.40"
```

```
label value abi1combined abi1combined
tab2 shscat abi1combined, row chi2

* CAC>75th // Binary // Using the AGE, GENDER, RACE-AD*JUSTED Quantiles of CAC Score
*summ cacq1c, detail // 2474 obs
*gen cac75adj=.
*replace cac75adj=0 if cacq1c<0.8712991
*replace cac75adj=1 if cacq1c>=0.8712991 & cacq1c!=.
*label var cac75adj "CAC Category (>75th Percentile) Age,Gender,Race-Adjusted)"
*label define cac75adj 0 "CAC<75th" 1 "CAC>=75th"
*label value cac75adj cac75adj
*tab cac75adj
*tab2 shscat cac75adj, row chi2

* CAC>75th // Binary // Using the mean: agatston calcium score, phantom-adjusted
summ agatpm1c, detail
gen cac75phadj=.
replace cac75phadj=0 if agatpm1c<80.9625
replace cac75phadj=1 if agatpm1c>=80.9625 & agatpm1c!=.
label var cac75phadj "CAC Category (>75th Percentile) Phantom Adjusted)"
label define cac75phadj 0 "CAC<75th" 1 "CAC>=75th"
label value cac75phadj cac75phadj
tab cac75phadj
tab2 shscat cac75phadj, row chi2

* CAC>0 // Binary
tab cal
gen caczero=0 if cal==0
replace caczero=1 if cal==1|cal==2|cal==3
label var caczero "CAC Category (>0)"
label define caczero 0 "CAC=0" 1 "CAC>0"
label value caczero caczero
tab2 shscat caczero, row chi2

* CAC>100 // Binary // took this out of analysis / table 1 because no differences across
groups of SHS cat
gen cac100=0 if cal<2
replace cac100=1 if cal==2|cal==3
label var cac100 "CAC Category (>100)"
label define cac100 0 "CAC<100" 1 "CAC>100"
label value cac100 cac100
tab2 shscat cac100, row chi2

* Generating Log CAC+1
gen logcac1=ln(agatpm1c+1)

* Generating the variable for the p-value of trend
gen shscat_median=.
replace shscat_median=0 if shscat==0
replace shscat_median=1 if shscat==1
replace shscat_median=2 if shscat==2
replace shscat_median=6 if shscat==3
replace shscat_median=30 if shscat==4

*Generate SHS unexposed vs quartile 4 (for interaction analysis)
gen shscat2=.
replace shscat2=0 if shscat==0
*replace shscat2=1 if shscat==1
*replace shscat2=1 if shscat==2
*replace shscat2=1 if shscat==3
replace shscat2=1 if shscat==4
tab shscat2

*Generate SHS exposed vs unexposed (for sensitivity analysis)
gen shscat3=.
replace shscat3=0 if shscat==0
replace shscat3=1 if shscat==1
replace shscat3=1 if shscat==2
replace shscat3=1 if shscat==3
replace shscat3=1 if shscat==4
tab shscat3
```

```
*Generate SHS quartile 4 vs quartile 1 (for sensitivity analysis)
gen shscat4=.
replace shscat4=0 if shscat==1
replace shscat4=1 if shscat==4
tab shscat4

drop _merge

save "HMagid MESA Thesis Dataset_Final.dta", replace
*******************************************************************************
** Aim 1
** To assess the association (before and after adjustment for sociodemographic,
** behavioral, and CVD risk factors ) between SHS exposure with inflammation and
** subclinical atherosclerosis
** Hypothesis: Secondhand smoke exposure is positively associated with
** inflammation and subclinical atherosclerosis.
*******************************************************************************
* logistic command produces results in terms of odds ratios while
* logit produces results in terms of coefficients scales in log odds
* use nolog or at the end and its the same

*******************************************************************************
********************** Aim 1: Inflamation ************************************
*******************************************************************************

use "HMagid MESA Thesis Dataset_Final.dta", clear

***************
*** hsCRP *****
***************
xi:reg logcrp i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat
xi:reg logcrp i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c
xi:reg logcrp i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c

* For P-for trend
xi:reg logcrp shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat
xi:reg logcrp shscat_median gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c
xi:reg logcrp shscat_median gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c

***************
*** hsCRP>=2 **
***************
xi:logit crp1cat i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat, nolog or
xi:logit crp1cat i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c, nolog or
xi:logit crp1cat i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or

* For P-for trend
xi:logit crp1cat shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat, nolog
or
xi:logit crp1cat shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c, nolog or
xi:logit crp1cat shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or

***************
**** IL-6 *****
***************
xi:reg logil61 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat
xi:reg logil61 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c
xi:reg logil61 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c

xi:reg logil61 shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat
```

```
xi:reg logil61 shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c
xi:reg logil61 shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c

****************
** Fibrinogen **
****************
xi:reg logfib1 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat
xi:reg logfib1 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c
xi:reg logfib1 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c

xi:reg logfib1 shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat
xi:reg logfib1 shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c
xi:reg logfib1 shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c

*******************************************************************************
******************* Aim 1: Subclinical Atherosclerosis ************************
*******************************************************************************

********************
*** Internal cIMT **
********************
xi:reg logint1 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat
xi:reg logint1 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c
xi:reg logint1 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c

xi:reg logint1 shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat
xi:reg logint1 shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c
xi:reg logint1 shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c

********************
*** Common cIMT **
********************
xi:reg logcom1 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat
xi:reg logcom1 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c
xi:reg logcom1 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c

xi:reg logcom1 shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat
xi:reg logcom1 shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c
xi:reg logcom1 shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c

********************
*** CAC>75th *******
********************
* CAC>75th // Binary //  Using the mean: agatston calcium score, phantom-adjusted
xi:logit cac75phadj i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat, nolog
or
xi:logit cac75phadj i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c, nolog or
xi:logit cac75phadj i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or

xi:logit cac75phadj shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat,
nolog or
xi:logit cac75phadj shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat
htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c, nolog or
xi:logit cac75phadj shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat
htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or
```

```
********************
*** CAC>0 **********
********************
xi:logit caczero i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat, nolog or
xi:logit caczero i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c, nolog or
xi:logit caczero i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or

xi:logit caczero shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat, nolog
or
xi:logit caczero shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c, nolog or
xi:logit caczero shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or

***************************
*** ABI Low (<=1) *********
***************************
xi:logit abi1low i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat, nolog or
xi:logit abi1low i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c, nolog or
xi:logit abi1low i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or

xi:logit abi1low shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat, nolog
or
xi:logit abi1low shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c, nolog or
xi:logit abi1low shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or

***************************
*** ABI Low (<=0.9) *******
***************************
xi:logit abi1low2 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat, nolog or
xi:logit abi1low2 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c, nolog or
xi:logit abi1low2 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or

xi:logit abi1low2 shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat,
nolog or
xi:logit abi1low2 shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c, nolog or
xi:logit abi1low2 shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or

***************************
*** ABI High(≥1.40 ********
***************************
xi:logit abi1high i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat, nolog or
xi:logit abi1high i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c, nolog or
xi:logit abi1high i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or

xi:logit abi1high shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat,
nolog or
xi:logit abi1high shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c, nolog or
xi:logit abi1high shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or

***************************
*** ABI Combined ********
***************************
xi:logit abi1combined i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat, nolog
or
```

```
xi:logit abi1combined i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c, nolog or
xi:logit abi1combined i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or

xi:logit abi1combined shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat,
nolog or
xi:logit abi1combined shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat
htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c, nolog or
xi:logit abi1combined shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat
htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or

*******************************************************************************
**** Urinary Cottinine Regression Table *****
*******************************************************************************
***************
*** hsCRP *****
***************
xi:reg logcrp cot1 age1c gender1 i.race1c i.site1c educ1cat income1cat
xi:reg logcrp cot1 age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c
xi:reg logcrp cot1 age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c

***************
*** hsCRP>=2 **
***************
xi:logit crp1cat cot1 age1c gender1 i.race1c i.site1c educ1cat income1cat, nolog or
xi:logit crp1cat cot1 age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c, nolog or
xi:logit crp1cat cot1 age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or

***************
**** IL-6 *****
***************
xi:reg logil61 cot1 age1c gender1 i.race1c i.site1c educ1cat income1cat
xi:reg logil61 cot1 age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c
xi:reg logil61 cot1 age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c

****************
** Fibrinogen **
****************
xi:reg logfib1 cot1 age1c gender1 i.race1c i.site1c educ1cat income1cat
xi:reg logfib1 cot1 age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c
xi:reg logfib1 cot1 age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c

*******************
*** Internal cIMT **
*******************
xi:reg logint1 cot1 age1c gender1 i.race1c i.site1c educ1cat income1cat
xi:reg logint1 cot1 age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c
xi:reg logint1 cot1 age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c

*******************
*** Common cIMT **
*******************
xi:reg logcom1 cot1 age1c gender1 i.race1c i.site1c educ1cat income1cat
xi:reg logcom1 cot1 age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c
xi:reg logcom1 cot1 age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c

*******************
*** CAC>75th *******
```

```
********************
* CAC>75th // Binary //  Using the mean: agatston calcium score, phantom-adjusted
xi:logit cac75phadj cot1 age1c gender1 i.race1c i.site1c educ1cat income1cat, nolog or
xi:logit cac75phadj cot1 age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c, nolog or
xi:logit cac75phadj cot1 age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or

********************
*** CAC>0 **********
********************
xi:logit caczero cot1 age1c gender1 i.race1c i.site1c educ1cat income1cat, nolog or
xi:logit caczero cot1 age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c, nolog or
xi:logit caczero cot1 age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or

***************************
*** ABI Low (<=1) *********
***************************
xi:logit abi1low cot1 age1c gender1 i.race1c i.site1c educ1cat income1cat, nolog or
xi:logit abi1low cot1 age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c, nolog or
xi:logit abi1low cot1 age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or

***************************
*** ABI Low (<=0.9) *******
***************************
xi:logit abi1low2 cot1 age1c gender1 i.race1c i.site1c educ1cat income1cat, nolog or
xi:logit abi1low2 cot1 age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c, nolog or
xi:logit abi1low2 cot1 age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or

***************************
*** ABI High(≥1.40 ********
***************************
xi:logit abi1high cot1 age1c gender1 i.race1c i.site1c educ1cat income1cat, nolog or
xi:logit abi1high cot1 age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c, nolog or
xi:logit abi1high cot1 age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or

***************************
*** ABI Combined ********
***************************
xi:logit abi1combined cot1 age1c gender1 i.race1c i.site1c educ1cat income1cat, nolog or
xi:logit abi1combined cot1 age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c, nolog or
xi:logit abi1combined cot1 age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or

*******************************************************************************
**** Urinary Cottinine Regression Table *****
** Make the table again: Restrict the analysis to people who had cotinine
** And then use cotinine as log transformed
*******************************************************************************
* Scatter plots of continous outcomes by log transformed cotinine, among those with
detectable cotinine
set scheme s1mono
graph twoway (lfitci logcrp logcot) (scatter logcrp logcot)
graph twoway (lfitci logil61 logcot) (scatter logil61 logcot)
graph twoway (lfitci logfib1 logcot) (scatter logfib1 logcot)
graph twoway (lfitci logint1 logcot) (scatter logint1 logcot)
graph twoway (lfitci logcom1 logcot) (scatter logcom1 logcot)
graph twoway (lfitci abi1c logcot) (scatter abi1c logcot)

***************
*** hsCRP *****
***************
```

```
xi:reg logcrp logcot age1c gender1 i.race1c i.site1c educ1cat income1cat
xi:reg logcrp logcot age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c
xi:reg logcrp logcot age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c

***************
*** hsCRP>=2 **
***************
xi:logit crp1cat logcot age1c gender1 i.race1c i.site1c educ1cat income1cat, nolog or
xi:logit crp1cat logcot age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c, nolog or
xi:logit crp1cat logcot age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or

***************
**** IL-6 *****
***************
xi:reg logil61 logcot age1c gender1 i.race1c i.site1c educ1cat income1cat
xi:reg logil61 logcot age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c
xi:reg logil61 logcot age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c

****************
** Fibrinogen **
****************
xi:reg logfib1 logcot age1c gender1 i.race1c i.site1c educ1cat income1cat
xi:reg logfib1 logcot age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c
xi:reg logfib1 logcot age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c

********************
*** Internal cIMT **
********************
xi:reg logint1 logcot age1c gender1 i.race1c i.site1c educ1cat income1cat
xi:reg logint1 logcot age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c
xi:reg logint1 logcot age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c

********************
*** Common cIMT **
********************
xi:reg logcom1 logcot age1c gender1 i.race1c i.site1c educ1cat income1cat
xi:reg logcom1 logcot age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c
xi:reg logcom1 logcot age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c

********************
*** CAC>75th *******
********************
* CAC>75th // Binary //  Using the mean: agatston calcium score, phantom-adjusted
xi:logit cac75phadj logcot age1c gender1 i.race1c i.site1c educ1cat income1cat, nolog or
xi:logit cac75phadj logcot age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c, nolog or
xi:logit cac75phadj logcot age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or

********************
*** CAC>0 **********
********************
xi:logit caczero logcot age1c gender1 i.race1c i.site1c educ1cat income1cat, nolog or
xi:logit caczero logcot age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c, nolog or
xi:logit caczero logcot age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or

**************************
```

```
*** ABI Low (<=1) *********
**************************
xi:logit abi1low logcot age1c gender1 i.race1c i.site1c educ1cat income1cat, nolog or
xi:logit abi1low logcot age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c, nolog or
xi:logit abi1low logcot age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or

**************************
*** ABI Low (<=0.9) *******
**************************
xi:logit abi1low2 logcot age1c gender1 i.race1c i.site1c educ1cat income1cat, nolog or
xi:logit abi1low2 logcot age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c, nolog or
xi:logit abi1low2 logcot age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or

**************************
*** ABI High(≥1.40 ********
**************************
xi:logit abi1high logcot age1c gender1 i.race1c i.site1c educ1cat income1cat, nolog or
xi:logit abi1high logcot age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c, nolog or
xi:logit abi1high logcot age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or

**************************
*** ABI Combined ********
**************************
xi:logit abi1combined logcot age1c gender1 i.race1c i.site1c educ1cat income1cat, nolog
or
xi:logit abi1combined logcot age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c, nolog or
xi:logit abi1combined logcot age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or

*******************************************************************************
** EMM // Interaction
** Aim 2: To assess whether the association between secondhand smoke exposure //
** and cardiovascular disease endpoints in aim 1 is modified by study site and
** race/ethnicity, and smoking status.
*******************************************************************************

*To double check the sample sizes for the interaction analysis
tab2 shscat2 gender
tab2 shscat2 agecat1
tab2 shscat2 race1c
tab2 shscat2 site1c
tab2 shscat2 educ1cat
tab2 shscat2 cig1c

***************
*** hsCRP *****
***************
* Overall
xi:reg logcrp shscat2 gender1 i.agecat1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c
* Females
xi:reg logcrp shscat2 i.agecat1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if gender==0
* Males
xi:reg logcrp shscat2 i.agecat1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if gender==1
* Sex P-Value
xi:reg logcrp shscat2 i.shscat2*gender1 gender1 i.agecat1 i.race1c i.site1c educ1cat
income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c
test _IshsXgende_1

* Age
xi:reg logcrp shscat2 gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat ldl1
lipid1c pamvcm1c cig1c bmi1c if agecat1c==1
```

```
xi:reg logcrp shscat2 gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat ldl1
lipid1c pamvcm1c cig1c bmi1c if agecat1c==2
xi:reg logcrp shscat2 gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat ldl1
lipid1c pamvcm1c cig1c bmi1c if agecat1c==3
xi:reg logcrp shscat2 gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat ldl1
lipid1c pamvcm1c cig1c bmi1c if agecat1c==4
* Age P-Value
xi:reg logcrp shscat2 i.shscat2*i.agecat1c i.agecat1c gender1 i.race1c i.site1c educ1cat
income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c
test _IshsXage_1_2 _IshsXage_1_3 _IshsXage_1_4

* Race/Ethnicity
* White
xi:reg logcrp shscat2 gender1 i.agecat1 i.site1c educ1cat income1cat htn1c dm031ccat ldl1
lipid1c pamvcm1c cig1c bmi1c if race1c==1
* Chinnese
xi:reg logcrp shscat2 gender1 i.agecat1 i.site1c educ1cat income1cat htn1c dm031ccat ldl1
lipid1c pamvcm1c cig1c bmi1c if race1c==2
* Black
xi:reg logcrp shscat2 gender1 i.agecat1 i.site1c educ1cat income1cat htn1c dm031ccat ldl1
lipid1c pamvcm1c cig1c bmi1c if race1c==3
* Hispanic
xi:reg logcrp shscat2 gender1 i.agecat1 i.site1c educ1cat income1cat htn1c dm031ccat ldl1
lipid1c pamvcm1c cig1c bmi1c if race1c==4
* Race P-Value
xi:reg logcrp shscat2 i.shscat2*i.race1c gender1 i.agecat1 i.race1c i.site1c educ1cat
income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c
test _IshsXrac_1_2 _IshsXrac_1_3 _IshsXrac_1_4

*Clinic Stite
* WFU
xi:reg logcrp shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat ldl1
lipid1c pamvcm1c cig1c bmi1c if site1c==3
* Col
xi:reg logcrp shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat ldl1
lipid1c pamvcm1c cig1c bmi1c if site1c==4
* JHU
xi:reg logcrp shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat ldl1
lipid1c pamvcm1c cig1c bmi1c if site1c==5
* UMN
xi:reg logcrp shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat ldl1
lipid1c pamvcm1c cig1c bmi1c if site1c==6
* NWU
xi:reg logcrp shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat ldl1
lipid1c pamvcm1c cig1c bmi1c if site1c==7
* UCLA
xi:reg logcrp shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat ldl1
lipid1c pamvcm1c cig1c bmi1c if site1c==8
* Site P-Value
xi:reg logcrp shscat2 i.shscat2*i.site1c gender1 i.agecat1 i.race1c i.site1c educ1cat
income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c
test _IshsXsit_1_4 _IshsXsit_1_5 _IshsXsit_1_6 _IshsXsit_1_7 _IshsXsit_1_8

* Education, 2 categories
* High school or less
xi:reg logcrp shscat2 gender1 i.agecat1 i.race1c i.site1c income1cat htn1c dm031ccat ldl1
lipid1c pamvcm1c cig1c bmi1c if educ1cat==0
* More than high school
xi:reg logcrp shscat2 gender1 i.agecat1 i.race1c i.site1c income1cat htn1c dm031ccat ldl1
lipid1c pamvcm1c cig1c bmi1c if educ1cat==1
* Education P-Value
xi:reg logcrp shscat2 i.shscat2*educ1cat gender1 i.agecat1 i.race1c i.site1c educ1cat
income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c
test _IshsXeduc1_1

* Smoking Status
* Never
xi:reg logcrp shscat2 gender1 i.agecat1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c bmi1c if cig1c==0
* Former
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xi:reg logcrp shscat2 gender1 i.agecat1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c bmi1c if cig1c==1
* Smoking Status P-Value
xi:reg logcrp shscat2 i.shscat2*cig1c gender1 i.agecat1 i.race1c i.site1c educ1cat
income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c
test _IshsXcig1c_1

***************
*** hsCRP>=2 **
***************
* Overall
xi:logit crp1cat shscat2 gender1 i.agecat1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or
* Females
xi:logit crp1cat shscat2 i.agecat1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if gender==0, nolog or
* Males
xi:logit crp1cat shscat2 i.agecat1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if gender==1, nolog or
* Sex P-Value
xi:logit crp1cat shscat2 i.shscat2*gender1 gender1 i.agecat1 i.race1c i.site1c educ1cat
income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or
test _IshsXgende_1

* Age
xi:logit crp1cat shscat2 gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if agecat1c==1, nolog or
xi:logit crp1cat shscat2 gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if agecat1c==2, nolog or
xi:logit crp1cat shscat2 gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if agecat1c==3, nolog or
xi:logit crp1cat shscat2 gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if agecat1c==4, nolog or
* Age P-Value
xi:logit crp1cat shscat2 i.shscat2*i.agecat1c i.agecat1c gender1 i.race1c i.site1c
educ1cat income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or
test _IshsXage_1_2 _IshsXage_1_3 _IshsXage_1_4

* Race/Ethnicity
* White
xi:logit crp1cat shscat2 gender1 i.agecat1 i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if race1c==1, nolog or
* Chinnese
xi:logit crp1cat shscat2 gender1 i.agecat1 i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if race1c==2, nolog or
* Black
xi:logit crp1cat shscat2 gender1 i.agecat1 i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if race1c==3, nolog or
* Hispanic
xi:logit crp1cat shscat2 gender1 i.agecat1 i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if race1c==4, nolog or
* Race P-Value
xi:logit crp1cat shscat2 i.shscat2*i.race1c gender1 i.agecat1 i.race1c i.site1c educ1cat
income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or
test _IshsXrac_1_2 _IshsXrac_1_3 _IshsXrac_1_4

*Clinic Stite
* WFU
xi:logit crp1cat shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==3, nolog or
* Col
xi:logit crp1cat shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==4, nolog or
* JHU
xi:logit crp1cat shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==5, nolog or
* UMN
xi:logit crp1cat shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==6, nolog or
* NWU
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xi:logit crp1cat shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==7, nolog or
* UCLA
xi:logit crp1cat shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==8, nolog or
* Site P-Value
xi:logit crp1cat shscat2 i.shscat2*i.site1c gender1 i.agecat1 i.race1c i.site1c educ1cat
income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or
test _IshsXsit_1_4 _IshsXsit_1_5 _IshsXsit_1_6 _IshsXsit_1_7 _IshsXsit_1_8

* Education, 2 categories
* High school or less
xi:logit crp1cat shscat2 gender1 i.agecat1 i.race1c i.site1c income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if educ1cat==0, nolog or
* More than high school
xi:logit crp1cat shscat2 gender1 i.agecat1 i.race1c i.site1c income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if educ1cat==1, nolog or
* Education P-Value
xi:logit crp1cat shscat2 i.shscat2*educ1cat gender1 i.agecat1 i.race1c i.site1c educ1cat
income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or
test _IshsXeduc1_1

* Smoking Status
* Never
xi:logit crp1cat shscat2 gender1 i.agecat1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c bmi1c if cig1c==0, nolog or
* Former
xi:logit crp1cat shscat2 gender1 i.agecat1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c bmi1c if cig1c==1, nolog or
* Smoking Status P-Value
xi:logit crp1cat shscat2 i.shscat2*cig1c gender1 i.agecat1 i.race1c i.site1c educ1cat
income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or
test _IshsXcig1c_1

***************
**** IL-6 *****
***************
* Overall
xi:reg logil61 shscat2 gender1 i.agecat1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c
* Females
xi:reg logil61 shscat2 i.agecat1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if gender==0
* Males
xi:reg logil61 shscat2 i.agecat1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if gender==1
* Sex P-Value
xi:reg logil61 shscat2 i.shscat2*gender1 gender1 i.agecat1 i.race1c i.site1c educ1cat
income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c
test _IshsXgende_1

* Age
xi:reg logil61 shscat2 gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat ldl1
lipid1c pamvcm1c cig1c bmi1c if agecat1c==1
xi:reg logil61 shscat2 gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat ldl1
lipid1c pamvcm1c cig1c bmi1c if agecat1c==2
xi:reg logil61 shscat2 gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat ldl1
lipid1c pamvcm1c cig1c bmi1c if agecat1c==3
xi:reg logil61 shscat2 gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat ldl1
lipid1c pamvcm1c cig1c bmi1c if agecat1c==4
* Age P-Value
xi:reg logil61 shscat2 i.shscat2*i.agecat1c i.agecat1c gender1 i.race1c i.site1c educ1cat
income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c
test _IshsXage_1_2 _IshsXage_1_3 _IshsXage_1_4

* Race/Ethnicity
* White
xi:reg logil61 shscat2 gender1 i.agecat1 i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if race1c==1
* Chinnese
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xi:reg logil61 shscat2 gender1 i.agecat1 i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if race1c==2
* Black
xi:reg logil61 shscat2 gender1 i.agecat1 i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if race1c==3
* Hispanic
xi:reg logil61 shscat2 gender1 i.agecat1 i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if race1c==4
* Race P-Value
xi:reg logil61 shscat2 i.shscat2*i.race1c gender1 i.agecat1 i.race1c i.site1c educ1cat
income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c
test _IshsXrac_1_2 _IshsXrac_1_3 _IshsXrac_1_4

*Clinic Stite
* WFU
xi:reg logil61 shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==3
* Col
xi:reg logil61 shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==4
* JHU
xi:reg logil61 shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==5
* UMN
xi:reg logil61 shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==6
* NWU
xi:reg logil61 shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==7
* UCLA
xi:reg logil61 shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==8
* Site P-Value
xi:reg logil61 shscat2 i.shscat2*i.site1c gender1 i.agecat1 i.race1c i.site1c educ1cat
income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c
test _IshsXsit_1_4 _IshsXsit_1_5 _IshsXsit_1_6 _IshsXsit_1_7 _IshsXsit_1_8

* Education, 2 categories
* High school or less
xi:reg logil61 shscat2 gender1 i.agecat1 i.race1c i.site1c income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if educ1cat==0
* More than high school
xi:reg logil61 shscat2 gender1 i.agecat1 i.race1c i.site1c income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if educ1cat==1
* Education P-Value
xi:reg logil61 shscat2 i.shscat2*educ1cat gender1 i.agecat1 i.race1c i.site1c educ1cat
income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c
test _IshsXeduc1_1

* Smoking Status
* Never
xi:reg logil61 shscat2 gender1 i.agecat1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c bmi1c if cig1c==0
* Former
xi:reg logil61 shscat2 gender1 i.agecat1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c bmi1c if cig1c==1
* Smoking Status P-Value
xi:reg logil61 shscat2 i.shscat2*cig1c gender1 i.agecat1 i.race1c i.site1c educ1cat
income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c
test _IshsXcig1c_1

****************
** Fibrinogen **
****************
* Overall
xi:reg logfib1 shscat2 gender1 i.agecat1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c
* Females
xi:reg logfib1 shscat2 i.agecat1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if gender==0
* Males
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xi:reg logfib1 shscat2 i.agecat1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if gender==1
* Sex P-Value
xi:reg logfib1 shscat2 i.shscat2*gender1 gender1 i.agecat1 i.race1c i.site1c educ1cat
income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c
test _IshsXgende_1

* Age
xi:reg logfib1 shscat2 gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat ldl1
lipid1c pamvcm1c cig1c bmi1c if agecat1c==1
xi:reg logfib1 shscat2 gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat ldl1
lipid1c pamvcm1c cig1c bmi1c if agecat1c==2
xi:reg logfib1 shscat2 gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat ldl1
lipid1c pamvcm1c cig1c bmi1c if agecat1c==3
xi:reg logfib1 shscat2 gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat ldl1
lipid1c pamvcm1c cig1c bmi1c if agecat1c==4
* Age P-Value
xi:reg logfib1 shscat2 i.shscat2*i.agecat1c i.agecat1c gender1 i.race1c i.site1c educ1cat
income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c
test _IshsXage_1_2 _IshsXage_1_3 _IshsXage_1_4

* Race/Ethnicity
* White
xi:reg logfib1 shscat2 gender1 i.agecat1 i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if race1c==1
* Chinnese
xi:reg logfib1 shscat2 gender1 i.agecat1 i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if race1c==2
* Black
xi:reg logfib1 shscat2 gender1 i.agecat1 i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if race1c==3
* Hispanic
xi:reg logfib1 shscat2 gender1 i.agecat1 i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if race1c==4
* Race P-Value
xi:reg logfib1 shscat2 i.shscat2*i.race1c gender1 i.agecat1 i.race1c i.site1c educ1cat
income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c
test _IshsXrac_1_2 _IshsXrac_1_3 _IshsXrac_1_4

*Clinic Stite
* WFU
xi:reg logfib1 shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==3
* Col
xi:reg logfib1 shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==4
* JHU
xi:reg logfib1 shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==5
* UMN
xi:reg logfib1 shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==6
* NWU
xi:reg logfib1 shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==7
* UCLA
xi:reg logfib1 shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==8
* Site P-Value
xi:reg logfib1 shscat2 i.shscat2*i.site1c gender1 i.agecat1 i.race1c i.site1c educ1cat
income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c
test _IshsXsit_1_4 _IshsXsit_1_5 _IshsXsit_1_6 _IshsXsit_1_7 _IshsXsit_1_8

* Education, 2 categories
* High school or less
xi:reg logfib1 shscat2 gender1 i.agecat1 i.race1c i.site1c income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if educ1cat==0
* More than high school
xi:reg logfib1 shscat2 gender1 i.agecat1 i.race1c i.site1c income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if educ1cat==1
* Education P-Value
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xi:reg logfib1 shscat2 i.shscat2*educ1cat gender1 i.agecat1 i.race1c i.site1c educ1cat
income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c
test _IshsXeduc1_1

* Smoking Status
* Never
xi:reg logfib1 shscat2 gender1 i.agecat1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c bmi1c if cig1c==0
* Former
xi:reg logfib1 shscat2 gender1 i.agecat1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c bmi1c if cig1c==1
* Smoking Status P-Value
xi:reg logfib1 shscat2 i.shscat2*cig1c gender1 i.agecat1 i.race1c i.site1c educ1cat
income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c
test _IshsXcig1c_1

********************
*** Internal cIMT **
********************
* Overall
xi:reg logint1 shscat2 gender1 i.agecat1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c
* Females
xi:reg logint1 shscat2 i.agecat1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if gender==0
* Males
xi:reg logint1 shscat2 i.agecat1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if gender==1
* Sex P-Value
xi:reg logint1 shscat2 i.shscat2*gender1 gender1 i.agecat1 i.race1c i.site1c educ1cat
income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c
test _IshsXgende_1

* Age
xi:reg logint1 shscat2 gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat ldl1
lipid1c pamvcm1c cig1c bmi1c if agecat1c==1
xi:reg logint1 shscat2 gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat ldl1
lipid1c pamvcm1c cig1c bmi1c if agecat1c==2
xi:reg logint1 shscat2 gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat ldl1
lipid1c pamvcm1c cig1c bmi1c if agecat1c==3
xi:reg logint1 shscat2 gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat ldl1
lipid1c pamvcm1c cig1c bmi1c if agecat1c==4
* Age P-Value
xi:reg logint1 shscat2 i.shscat2*i.agecat1c i.agecat1c gender1 i.race1c i.site1c educ1cat
income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c
test _IshsXage_1_2 _IshsXage_1_3 _IshsXage_1_4

* Race/Ethnicity
* White
xi:reg logint1 shscat2 gender1 i.agecat1 i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if race1c==1
* Chinnese
xi:reg logint1 shscat2 gender1 i.agecat1 i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if race1c==2
* Black
xi:reg logint1 shscat2 gender1 i.agecat1 i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if race1c==3
* Hispanic
xi:reg logint1 shscat2 gender1 i.agecat1 i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if race1c==4
* Race P-Value
xi:reg logint1 shscat2 i.shscat2*i.race1c gender1 i.agecat1 i.race1c i.site1c educ1cat
income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c
test _IshsXrac_1_2 _IshsXrac_1_3 _IshsXrac_1_4

*Clinic Stite
* WFU
xi:reg logint1 shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==3
* Col
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xi:reg logint1 shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==4
* JHU
xi:reg logint1 shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==5
* UMN
xi:reg logint1 shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==6
* NWU
xi:reg logint1 shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==7
* UCLA
xi:reg logint1 shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==8
* Site P-Value
xi:reg logint1 shscat2 i.shscat2*i.site1c gender1 i.agecat1 i.race1c i.site1c educ1cat
income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c
test _IshsXsit_1_4 _IshsXsit_1_5 _IshsXsit_1_6 _IshsXsit_1_7 _IshsXsit_1_8

* Education, 2 categories
* High school or less
xi:reg logint1 shscat2 gender1 i.agecat1 i.race1c i.site1c income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if educ1cat==0
* More than high school
xi:reg logint1 shscat2 gender1 i.agecat1 i.race1c i.site1c income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if educ1cat==1
* Education P-Value
xi:reg logint1 shscat2 i.shscat2*educ1cat gender1 i.agecat1 i.race1c i.site1c educ1cat
income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c
test _IshsXeduc1_1

* Smoking Status
* Never
xi:reg logint1 shscat2 gender1 i.agecat1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c bmi1c if cig1c==0
* Former
xi:reg logint1 shscat2 gender1 i.agecat1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c bmi1c if cig1c==1
* Smoking Status P-Value
xi:reg logint1 shscat2 i.shscat2*cig1c gender1 i.agecat1 i.race1c i.site1c educ1cat
income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c
test _IshsXcig1c_1

********************
*** Common cIMT **
********************
* Overall
xi:reg logcom1 shscat2 gender1 i.agecat1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c
* Females
xi:reg logcom1 shscat2 i.agecat1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if gender==0
* Males
xi:reg logcom1 shscat2 i.agecat1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if gender==1
* Sex P-Value
xi:reg logcom1 shscat2 i.shscat2*gender1 gender1 i.agecat1 i.race1c i.site1c educ1cat
income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c
test _IshsXgende_1

* Age
xi:reg logcom1 shscat2 gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat ldl1
lipid1c pamvcm1c cig1c bmi1c if agecat1c==1
xi:reg logcom1 shscat2 gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat ldl1
lipid1c pamvcm1c cig1c bmi1c if agecat1c==2
xi:reg logcom1 shscat2 gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat ldl1
lipid1c pamvcm1c cig1c bmi1c if agecat1c==3
xi:reg logcom1 shscat2 gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat ldl1
lipid1c pamvcm1c cig1c bmi1c if agecat1c==4
* Age P-Value
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xi:reg logcom1 shscat2 i.shscat2*i.agecat1c i.agecat1c gender1 i.race1c i.site1c educ1cat
income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c
test _IshsXage_1_2 _IshsXage_1_3 _IshsXage_1_4

* Race/Ethnicity
* White
xi:reg logcom1 shscat2 gender1 i.agecat1 i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if race1c==1
* Chinnese
xi:reg logcom1 shscat2 gender1 i.agecat1 i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if race1c==2
* Black
xi:reg logcom1 shscat2 gender1 i.agecat1 i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if race1c==3
* Hispanic
xi:reg logcom1 shscat2 gender1 i.agecat1 i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if race1c==4
* Race P-Value
xi:reg logcom1 shscat2 i.shscat2*i.race1c gender1 i.agecat1 i.race1c i.site1c educ1cat
income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c
test _IshsXrac_1_2 _IshsXrac_1_3 _IshsXrac_1_4

*Clinic Stite
* WFU
xi:reg logcom1 shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==3
* Col
xi:reg logcom1 shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==4
* JHU
xi:reg logcom1 shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==5
* UMN
xi:reg logcom1 shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==6
* NWU
xi:reg logcom1 shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==7
* UCLA
xi:reg logcom1 shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==8
* Site P-Value
xi:reg logcom1 shscat2 i.shscat2*i.site1c gender1 i.agecat1 i.race1c i.site1c educ1cat
income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c
test _IshsXsit_1_4 _IshsXsit_1_5 _IshsXsit_1_6 _IshsXsit_1_7 _IshsXsit_1_8

* Education, 2 categories
* High school or less
xi:reg logcom1 shscat2 gender1 i.agecat1 i.race1c i.site1c income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if educ1cat==0
* More than high school
xi:reg logcom1 shscat2 gender1 i.agecat1 i.race1c i.site1c income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if educ1cat==1
* Education P-Value
xi:reg logcom1 shscat2 i.shscat2*educ1cat gender1 i.agecat1 i.race1c i.site1c educ1cat
income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c
test _IshsXeduc1_1

* Smoking Status
* Never
xi:reg logcom1 shscat2 gender1 i.agecat1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c bmi1c if cig1c==0
* Former
xi:reg logcom1 shscat2 gender1 i.agecat1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c bmi1c if cig1c==1
* Smoking Status P-Value
xi:reg logcom1 shscat2 i.shscat2*cig1c gender1 i.agecat1 i.race1c i.site1c educ1cat
income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c
test _IshsXcig1c_1
```

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********************
*** CAC>75th *******
********************
* Overall
xi:logit cac75phadj shscat2 gender1 i.agecat1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or
* Females
xi:logit cac75phadj shscat2 i.agecat1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c if gender==0, nolog or
* Males
xi:logit cac75phadj shscat2 i.agecat1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c if gender==1, nolog or
* Sex P-Value
xi:logit cac75phadj shscat2 i.shscat2*gender1 gender1 i.agecat1 i.race1c i.site1c
educ1cat income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or
test _IshsXgende_1

* Age
xi:logit cac75phadj shscat2 gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if agecat1c==1, nolog or
xi:logit cac75phadj shscat2 gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if agecat1c==2, nolog or
xi:logit cac75phadj shscat2 gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if agecat1c==3, nolog or
xi:logit cac75phadj shscat2 gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if agecat1c==4, nolog or
* Age P-Value
xi:logit cac75phadj shscat2 i.shscat2*i.agecat1c i.agecat1c gender1 i.race1c i.site1c
educ1cat income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or
test _IshsXage_1_2 _IshsXage_1_3 _IshsXage_1_4

* Race/Ethnicity
* White
xi:logit cac75phadj shscat2 gender1 i.agecat1 i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c if race1c==1, nolog or
* Chinnese
xi:logit cac75phadj shscat2 gender1 i.agecat1 i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c if race1c==2, nolog or
* Black
xi:logit cac75phadj shscat2 gender1 i.agecat1 i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c if race1c==3, nolog or
* Hispanic
xi:logit cac75phadj shscat2 gender1 i.agecat1 i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c if race1c==4, nolog or
* Race P-Value
xi:logit cac75phadj shscat2 i.shscat2*i.race1c gender1 i.agecat1 i.race1c i.site1c
educ1cat income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or
test _IshsXrac_1_2 _IshsXrac_1_3 _IshsXrac_1_4

*Clinic Stite
* WFU
xi:logit cac75phadj shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==3, nolog or
* Col
xi:logit cac75phadj shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==4, nolog or
* JHU
xi:logit cac75phadj shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==5, nolog or
* UMN
xi:logit cac75phadj shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==6, nolog or
* NWU
xi:logit cac75phadj shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==7, nolog or
* UCLA
xi:logit cac75phadj shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==8, nolog or
* Site P-Value
xi:logit cac75phadj shscat2 i.shscat2*i.site1c gender1 i.agecat1 i.race1c i.site1c
educ1cat income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or
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```
test _IshsXsit_1_4 _IshsXsit_1_5 _IshsXsit_1_6 _IshsXsit_1_7 _IshsXsit_1_8

* Education, 2 categories
* High school or less
xi:logit cac75phadj shscat2 gender1 i.agecat1 i.race1c i.site1c income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c if educ1cat==0, nolog or
* More than high school
xi:logit cac75phadj shscat2 gender1 i.agecat1 i.race1c i.site1c income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c if educ1cat==1, nolog or
* Education P-Value
xi:logit cac75phadj shscat2 i.shscat2*educ1cat gender1 i.agecat1 i.race1c i.site1c
educ1cat income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or
test _IshsXeduc1_1

* Smoking Status
* Never
xi:logit cac75phadj shscat2 gender1 i.agecat1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c bmi1c if cig1c==0, nolog or
* Former
xi:logit cac75phadj shscat2 gender1 i.agecat1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c bmi1c if cig1c==1, nolog or
* Smoking Status P-Value
xi:logit cac75phadj shscat2 i.shscat2*cig1c gender1 i.agecat1 i.race1c i.site1c educ1cat
income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or
test _IshsXcig1c_1

********************
*** CAC>0 **********
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* Overall
xi:logit caczero shscat2 gender1 i.agecat1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or
* Females
xi:logit caczero shscat2 i.agecat1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if gender==0, nolog or
* Males
xi:logit caczero shscat2 i.agecat1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if gender==1, nolog or
* Sex P-Value
xi:logit caczero shscat2 i.shscat2*gender1 gender1 i.agecat1 i.race1c i.site1c educ1cat
income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or
test _IshsXgende_1

* Age
xi:logit caczero shscat2 gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if agecat1c==1, nolog or
xi:logit caczero shscat2 gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if agecat1c==2, nolog or
xi:logit caczero shscat2 gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if agecat1c==3, nolog or
xi:logit caczero shscat2 gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if agecat1c==4, nolog or
* Age P-Value
xi:logit caczero shscat2 i.shscat2*i.agecat1c i.agecat1c gender1 i.race1c i.site1c
educ1cat income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or
test _IshsXage_1_2 _IshsXage_1_3 _IshsXage_1_4

* Race/Ethnicity
* White
xi:logit caczero shscat2 gender1 i.agecat1 i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if race1c==1, nolog or
* Chinnese
xi:logit caczero shscat2 gender1 i.agecat1 i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if race1c==2, nolog or
* Black
xi:logit caczero shscat2 gender1 i.agecat1 i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if race1c==3, nolog or
* Hispanic
xi:logit caczero shscat2 gender1 i.agecat1 i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if race1c==4, nolog or
* Race P-Value
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xi:logit caczero shscat2 i.shscat2*i.race1c gender1 i.agecat1 i.race1c i.site1c educ1cat
income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or
test _IshsXrac_1_2 _IshsXrac_1_3 _IshsXrac_1_4

*Clinic Stite
* WFU
xi:logit caczero shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==3, nolog or
* Col
xi:logit caczero shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==4, nolog or
* JHU
xi:logit caczero shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==5, nolog or
* UMN
xi:logit caczero shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==6, nolog or
* NWU
xi:logit caczero shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==7, nolog or
* UCLA
xi:logit caczero shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==8, nolog or
* Site P-Value
xi:logit caczero shscat2 i.shscat2*i.site1c gender1 i.agecat1 i.race1c i.site1c educ1cat
income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or
test _IshsXsit_1_4 _IshsXsit_1_5 _IshsXsit_1_6 _IshsXsit_1_7 _IshsXsit_1_8

* Education, 2 categories
* High school or less
xi:logit caczero shscat2 gender1 i.agecat1 i.race1c i.site1c income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if educ1cat==0, nolog or
* More than high school
xi:logit caczero shscat2 gender1 i.agecat1 i.race1c i.site1c income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if educ1cat==1, nolog or
* Education P-Value
xi:logit caczero shscat2 i.shscat2*educ1cat gender1 i.agecat1 i.race1c i.site1c educ1cat
income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or
test _IshsXeduc1_1

* Smoking Status
* Never
xi:logit caczero shscat2 gender1 i.agecat1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c bmi1c if cig1c==0, nolog or
* Former
xi:logit caczero shscat2 gender1 i.agecat1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c bmi1c if cig1c==1, nolog or
* Smoking Status P-Value
xi:logit caczero shscat2 i.shscat2*cig1c gender1 i.agecat1 i.race1c i.site1c educ1cat
income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or
test _IshsXcig1c_1

**************************
*** ABI Low (<=1) *********
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* Overall
xi:logit abi1low shscat2 gender1 i.agecat1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or
* Females
xi:logit abi1low shscat2 i.agecat1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if gender==0, nolog or
* Males
xi:logit abi1low shscat2 i.agecat1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if gender==1, nolog or
* Sex P-Value
xi:logit abi1low shscat2 i.shscat2*gender1 gender1 i.agecat1 i.race1c i.site1c educ1cat
income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or
test _IshsXgende_1

* Age
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xi:logit abi1low shscat2 gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if agecat1c==1, nolog or
xi:logit abi1low shscat2 gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if agecat1c==2, nolog or
xi:logit abi1low shscat2 gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if agecat1c==3, nolog or
xi:logit abi1low shscat2 gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if agecat1c==4, nolog or
* Age P-Value
xi:logit abi1low shscat2 i.shscat2*i.agecat1c i.agecat1c gender1 i.race1c i.site1c
educ1cat income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or
test _IshsXage_1_2 _IshsXage_1_3 _IshsXage_1_4

* Race/Ethnicity
* White
xi:logit abi1low shscat2 gender1 i.agecat1 i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if race1c==1, nolog or
* Chinnese
xi:logit abi1low shscat2 gender1 i.agecat1 i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if race1c==2, nolog or
* Black
xi:logit abi1low shscat2 gender1 i.agecat1 i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if race1c==3, nolog or
* Hispanic
xi:logit abi1low shscat2 gender1 i.agecat1 i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if race1c==4, nolog or
* Race P-Value
xi:logit abi1low shscat2 i.shscat2*i.race1c gender1 i.agecat1 i.race1c i.site1c educ1cat
income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or
test _IshsXrac_1_2 _IshsXrac_1_3 _IshsXrac_1_4

*Clinic Stite
* WFU
xi:logit abi1low shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==3, nolog or
* Col
xi:logit abi1low shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==4, nolog or
* JHU
xi:logit abi1low shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==5, nolog or
* UMN
xi:logit abi1low shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==6, nolog or
* NWU
xi:logit abi1low shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==7, nolog or
* UCLA
xi:logit abi1low shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==8, nolog or
* Site P-Value
xi:logit abi1low shscat2 i.shscat2*i.site1c gender1 i.agecat1 i.race1c i.site1c educ1cat
income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or
test _IshsXsit_1_4 _IshsXsit_1_5 _IshsXsit_1_6 _IshsXsit_1_7 _IshsXsit_1_8

* Education, 2 categories
* High school or less
xi:logit abi1low shscat2 gender1 i.agecat1 i.race1c i.site1c income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if educ1cat==0, nolog or
* More than high school
xi:logit abi1low shscat2 gender1 i.agecat1 i.race1c i.site1c income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if educ1cat==1, nolog or
* Education P-Value
xi:logit abi1low shscat2 i.shscat2*educ1cat gender1 i.agecat1 i.race1c i.site1c educ1cat
income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or
test _IshsXeduc1_1

* Smoking Status
* Never
xi:logit abi1low shscat2 gender1 i.agecat1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c bmi1c if cig1c==0, nolog or
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* Former
xi:logit abi1low shscat2 gender1 i.agecat1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c bmi1c if cig1c==1, nolog or
* Smoking Status P-Value
xi:logit abi1low shscat2 i.shscat2*cig1c gender1 i.agecat1 i.race1c i.site1c educ1cat
income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or
test _IshsXcig1c_1

**************************
*** ABI Low (<=0.9) *******
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* Overall
xi:logit abi1low2 shscat2 gender1 i.agecat1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or
* Females
xi:logit abi1low2 shscat2 i.agecat1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if gender==0, nolog or
* Males
xi:logit abi1low2 shscat2 i.agecat1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if gender==1, nolog or
* Sex P-Value
xi:logit abi1low2 shscat2 i.shscat2*gender1 gender1 i.agecat1 i.race1c i.site1c educ1cat
income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or
test _IshsXgende_1

* Age
xi:logit abi1low2 shscat2 gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if agecat1c==1, nolog or
xi:logit abi1low2 shscat2 gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if agecat1c==2, nolog or
xi:logit abi1low2 shscat2 gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if agecat1c==3, nolog or
xi:logit abi1low2 shscat2 gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if agecat1c==4, nolog or
* Age P-Value
xi:logit abi1low2 shscat2 i.shscat2*i.agecat1c i.agecat1c gender1 i.race1c i.site1c
educ1cat income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or
test _IshsXage_1_2 _IshsXage_1_3 _IshsXage_1_4

* Race/Ethnicity
* White
xi:logit abi1low2 shscat2 gender1 i.agecat1 i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if race1c==1, nolog or
* Chinnese
xi:logit abi1low2 shscat2 gender1 i.agecat1 i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if race1c==2, nolog or
* Black
xi:logit abi1low2 shscat2 gender1 i.agecat1 i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if race1c==3, nolog or
* Hispanic
xi:logit abi1low2 shscat2 gender1 i.agecat1 i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if race1c==4, nolog or
* Race P-Value
xi:logit abi1low2 shscat2 i.shscat2*i.race1c gender1 i.agecat1 i.race1c i.site1c educ1cat
income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or
test _IshsXrac_1_2 _IshsXrac_1_3 _IshsXrac_1_4

*Clinic Stite
* WFU
xi:logit abi1low2 shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==3, nolog or
* Col
xi:logit abi1low2 shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==4, nolog or
* JHU
xi:logit abi1low2 shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==5, nolog or
* UMN
xi:logit abi1low2 shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==6, nolog or
* NWU
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xi:logit abi1low2 shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==7, nolog or
* UCLA
xi:logit abi1low2 shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==8, nolog or
* Site P-Value
xi:logit abi1low2 shscat2 i.shscat2*i.site1c gender1 i.agecat1 i.race1c i.site1c educ1cat
income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or
test _IshsXsit_1_4 _IshsXsit_1_5 _IshsXsit_1_6 _IshsXsit_1_7 _IshsXsit_1_8

* Education, 2 categories
* High school or less
xi:logit abi1low2 shscat2 gender1 i.agecat1 i.race1c i.site1c income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if educ1cat==0, nolog or
* More than high school
xi:logit abi1low2 shscat2 gender1 i.agecat1 i.race1c i.site1c income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if educ1cat==1, nolog or
* Education P-Value
xi:logit abi1low2 shscat2 i.shscat2*educ1cat gender1 i.agecat1 i.race1c i.site1c educ1cat
income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or
test _IshsXeduc1_1

* Smoking Status
* Never
xi:logit abi1low2 shscat2 gender1 i.agecat1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c bmi1c if cig1c==0, nolog or
* Former
xi:logit abi1low2 shscat2 gender1 i.agecat1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c bmi1c if cig1c==1, nolog or
* Smoking Status P-Value
xi:logit abi1low2 shscat2 i.shscat2*cig1c gender1 i.agecat1 i.race1c i.site1c educ1cat
income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or
test _IshsXcig1c_1

**************************
*** ABI High (>=1.4) *********
**************************
* Overall
xi:logit abi1high shscat2 gender1 i.agecat1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or
* Females
xi:logit abi1high shscat2 i.agecat1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if gender==0, nolog or
* Males
xi:logit abi1high shscat2 i.agecat1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if gender==1, nolog or
* Sex P-Value
xi:logit abi1high shscat2 i.shscat2*gender1 gender1 i.agecat1 i.race1c i.site1c educ1cat
income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or
test _IshsXgende_1

* Age
xi:logit abi1high shscat2 gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if agecat1c==1, nolog or
xi:logit abi1high shscat2 gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if agecat1c==2, nolog or
xi:logit abi1high shscat2 gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if agecat1c==3, nolog or
xi:logit abi1high shscat2 gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if agecat1c==4, nolog or
* Age P-Value
xi:logit abi1high shscat2 i.shscat2*i.agecat1c i.agecat1c gender1 i.race1c i.site1c
educ1cat income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or
test _IshsXage_1_2 _IshsXage_1_3 _IshsXage_1_4

* Race/Ethnicity
* White
xi:logit abi1high shscat2 gender1 i.agecat1 i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if race1c==1, nolog or
* Chinnese
```

```
xi:logit abi1high shscat2 gender1 i.agecat1 i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if race1c==2, nolog or
* Black
xi:logit abi1high shscat2 gender1 i.agecat1 i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if race1c==3, nolog or
* Hispanic
xi:logit abi1high shscat2 gender1 i.agecat1 i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if race1c==4, nolog or
* Race P-Value
xi:logit abi1high shscat2 i.shscat2*i.race1c gender1 i.agecat1 i.race1c i.site1c educ1cat
income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or
test _IshsXrac_1_2 _IshsXrac_1_3 _IshsXrac_1_4

*Clinic Stite
* WFU
xi:logit abi1high shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==3, nolog or
* Col
xi:logit abi1high shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==4, nolog or
* JHU
xi:logit abi1high shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==5, nolog or
* UMN
xi:logit abi1high shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==6, nolog or
* NWU
xi:logit abi1high shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==7, nolog or
* UCLA
xi:logit abi1high shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==8, nolog or
* Site P-Value
xi:logit abi1high shscat2 i.shscat2*i.site1c gender1 i.agecat1 i.race1c i.site1c educ1cat
income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or
test _IshsXsit_1_4 _IshsXsit_1_5 _IshsXsit_1_6 _IshsXsit_1_7 _IshsXsit_1_8

* Education, 2 categories
* High school or less
xi:logit abi1high shscat2 gender1 i.agecat1 i.race1c i.site1c income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if educ1cat==0, nolog or
* More than high school
xi:logit abi1high shscat2 gender1 i.agecat1 i.race1c i.site1c income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c if educ1cat==1, nolog or
* Education P-Value
xi:logit abi1high shscat2 i.shscat2*educ1cat gender1 i.agecat1 i.race1c i.site1c educ1cat
income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or
test _IshsXeduc1_1

* Smoking Status
* Never
xi:logit abi1high shscat2 gender1 i.agecat1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c bmi1c if cig1c==0, nolog or
* Former
xi:logit abi1high shscat2 gender1 i.agecat1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c bmi1c if cig1c==1, nolog or
* Smoking Status P-Value
xi:logit abi1high shscat2 i.shscat2*cig1c gender1 i.agecat1 i.race1c i.site1c educ1cat
income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or
test _IshsXcig1c_1

**************************
*** ABI Combined (>=1.4) **
**************************
* Overall
xi:logit abi1combined shscat2 gender1 i.agecat1 i.race1c i.site1c educ1cat income1cat
htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or
* Females
xi:logit abi1combined shscat2 i.agecat1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c if gender==0, nolog or
* Males
```

```
xi:logit abi1combined shscat2 i.agecat1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c if gender==1, nolog or
* Sex P-Value
xi:logit abi1combined shscat2 i.shscat2*gender1 gender1 i.agecat1 i.race1c i.site1c
educ1cat income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or
test _IshsXgende_1

* Age
xi:logit abi1combined shscat2 gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c if agecat1c==1, nolog or
xi:logit abi1combined shscat2 gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c if agecat1c==2, nolog or
xi:logit abi1combined shscat2 gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c if agecat1c==3, nolog or
xi:logit abi1combined shscat2 gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c if agecat1c==4, nolog or
* Age P-Value
xi:logit abi1combined shscat2 i.shscat2*i.agecat1c i.agecat1c gender1 i.race1c i.site1c
educ1cat income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or
test _IshsXage_1_2 _IshsXage_1_3 _IshsXage_1_4

* Race/Ethnicity
* White
xi:logit abi1combined shscat2 gender1 i.agecat1 i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c if race1c==1, nolog or
* Chinnese
xi:logit abi1combined shscat2 gender1 i.agecat1 i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c if race1c==2, nolog or
* Black
xi:logit abi1combined shscat2 gender1 i.agecat1 i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c if race1c==3, nolog or
* Hispanic
xi:logit abi1combined shscat2 gender1 i.agecat1 i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c if race1c==4, nolog or
* Race P-Value
xi:logit abi1combined shscat2 i.shscat2*i.race1c gender1 i.agecat1 i.race1c i.site1c
educ1cat income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or
test _IshsXrac_1_2 _IshsXrac_1_3 _IshsXrac_1_4

*Clinic Stite
* WFU
xi:logit abi1combined shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==3, nolog or
* Col
xi:logit abi1combined shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==4, nolog or
* JHU
xi:logit abi1combined shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==5, nolog or
* UMN
xi:logit abi1combined shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==6, nolog or
* NWU
xi:logit abi1combined shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==7, nolog or
* UCLA
xi:logit abi1combined shscat2 gender1 i.agecat1 i.race1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c if site1c==8, nolog or
* Site P-Value
xi:logit abi1combined shscat2 i.shscat2*i.site1c gender1 i.agecat1 i.race1c i.site1c
educ1cat income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or
test _IshsXsit_1_4 _IshsXsit_1_5 _IshsXsit_1_6 _IshsXsit_1_7 _IshsXsit_1_8

* Education, 2 categories
* High school or less
xi:logit abi1combined shscat2 gender1 i.agecat1 i.race1c i.site1c income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c if educ1cat==0, nolog or
* More than high school
xi:logit abi1combined shscat2 gender1 i.agecat1 i.race1c i.site1c income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c if educ1cat==1, nolog or
* Education P-Value
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xi:logit abi1combined shscat2 i.shscat2*educ1cat gender1 i.agecat1 i.race1c i.site1c
educ1cat income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or
test _IshsXeduc1_1

* Smoking Status
* Never
xi:logit abi1combined shscat2 gender1 i.agecat1 i.race1c i.site1c educ1cat income1cat
htn1c dm031ccat ldl1 lipid1c pamvcm1c bmi1c if cig1c==0, nolog or
* Former
xi:logit abi1combined shscat2 gender1 i.agecat1 i.race1c i.site1c educ1cat income1cat
htn1c dm031ccat ldl1 lipid1c pamvcm1c bmi1c if cig1c==1, nolog or
* Smoking Status P-Value
xi:logit abi1combined shscat2 i.shscat2*cig1c gender1 i.agecat1 i.race1c i.site1c
educ1cat income1cat htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or
test _IshsXcig1c_1

*******************************************************************************
** Mediation
** Aim 3:To assess if the association of secondhand smoke with atherosclerosis
** is fully, partially, or not mediated by inflammation.
** Hypothesis: Inflammation is a partial mediator of the association between
** secondhand smoke exposure and subclinical atherosclerosis.
*******************************************************************************

*******************************************************************************
** Sensitivity Analyses
**
**
**
**
*******************************************************************************

* Adjust for current alcohol use
*******************************************************************************
********************** Current Alcohol Use ************************************
*******************************************************************************
***************
*** hsCRP *****
***************
xi:reg logcrp i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c curalc1
xi:reg logcrp i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c curalc1

***************
*** hsCRP>=2 **
***************
xi:logit crp1cat i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c curalc1, nolog or
xi:logit crp1cat i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c curalc1, nolog or

***************
**** IL-6 *****
***************
xi:reg logil61 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c curalc1
xi:reg logil61 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c curalc1

***************
** Fibrinogen **
***************
xi:reg logfib1 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c curalc1
xi:reg logfib1 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c curalc1

******************
*** Internal cIMT **
******************
```

```
xi:reg logint1 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c curalc1
xi:reg logint1 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c curalc1

********************
*** Common cIMT **
********************
xi:reg logcom1 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c curalc1
xi:reg logcom1 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c curalc1

********************
*** CAC>75th *******
********************
xi:logit cac75phadj i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c curalc1, nolog or
xi:logit cac75phadj i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c curalc1, nolog or

********************
*** CAC>0 **********
********************
xi:logit caczero i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c curalc1, nolog or
xi:logit caczero i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c curalc1, nolog or

**************************
*** ABI Low (<=1) *********
**************************
xi:logit abi1low i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c curalc1, nolog or
xi:logit abi1low i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c curalc1, nolog or

**************************
*** ABI Low (<=0.9) *******
**************************
xi:logit abi1low2 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c curalc1, nolog or
xi:logit abi1low2 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c curalc1, nolog or

**************************
*** ABI High(≥1.40 ********
**************************
xi:logit abi1high i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c curalc1, nolog or
xi:logit abi1high i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c curalc1, nolog or

* Adjusting for education based on more categories
* educ1cat2
*******************************************************************************
********************** Education based on more categories *********************
*******************************************************************************

***************
*** hsCRP *****
***************
xi:reg logcrp i.shscat age1c gender1 i.race1c i.site1c i.educ1cat2 income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c curalc1
xi:reg logcrp i.shscat age1c gender1 i.race1c i.site1c i.educ1cat2 income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c curalc1

***************
*** hsCRP>=2 **
***************
```

```
xi:logit crp1cat i.shscat age1c gender1 i.race1c i.site1c i.educ1cat2 income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c curalc1, nolog or
xi:logit crp1cat i.shscat age1c gender1 i.race1c i.site1c i.educ1cat2 income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c curalc1, nolog or

***************
**** IL-6 *****
***************
xi:reg logil61 i.shscat age1c gender1 i.race1c i.site1c i.educ1cat2 income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c curalc1
xi:reg logil61 i.shscat age1c gender1 i.race1c i.site1c i.educ1cat2 income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c curalc1

****************
** Fibrinogen **
****************
xi:reg logfib1 i.shscat age1c gender1 i.race1c i.site1c i.educ1cat2 income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c curalc1
xi:reg logfib1 i.shscat age1c gender1 i.race1c i.site1c i.educ1cat2 income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c curalc1

********************
*** Internal cIMT **
********************
xi:reg logint1 i.shscat age1c gender1 i.race1c i.site1c i.educ1cat2 income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c curalc1
xi:reg logint1 i.shscat age1c gender1 i.race1c i.site1c i.educ1cat2 income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c curalc1

********************
*** Common cIMT **
********************
xi:reg logcom1 i.shscat age1c gender1 i.race1c i.site1c i.educ1cat2 income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c curalc1
xi:reg logcom1 i.shscat age1c gender1 i.race1c i.site1c i.educ1cat2 income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c curalc1

********************
*** CAC>75th *******
********************
xi:logit cac75phadj i.shscat age1c gender1 i.race1c i.site1c i.educ1cat2 income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c curalc1, nolog or
xi:logit cac75phadj i.shscat age1c gender1 i.race1c i.site1c i.educ1cat2 income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c curalc1, nolog or

********************
*** CAC>0 **********
********************
xi:logit caczero i.shscat age1c gender1 i.race1c i.site1c i.educ1cat2 income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c curalc1, nolog or
xi:logit caczero i.shscat age1c gender1 i.race1c i.site1c i.educ1cat2 income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c curalc1, nolog or

**************************
*** ABI Low (<=1) *********
**************************
xi:logit abi1low i.shscat age1c gender1 i.race1c i.site1c i.educ1cat2 income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c curalc1, nolog or
xi:logit abi1low i.shscat age1c gender1 i.race1c i.site1c i.educ1cat2 income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c curalc1, nolog or

**************************
*** ABI Low (<=0.9) *******
**************************
xi:logit abi1low2 i.shscat age1c gender1 i.race1c i.site1c i.educ1cat2 income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c curalc1, nolog or
xi:logit abi1low2 i.shscat age1c gender1 i.race1c i.site1c i.educ1cat2 income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c curalc1, nolog or

**************************
*** ABI High(≥1.40 ********
```

```
**************************
xi:logit abi1high i.shscat age1c gender1 i.race1c i.site1c i.educ1cat2 income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c curalc1, nolog or
xi:logit abi1high i.shscat age1c gender1 i.race1c i.site1c i.educ1cat2 income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c curalc1, nolog or


* Adjusting for living with smoker as a child
* qsmkcha4
*******************************************************************************
********************** Living w/Smoker as a Child ******************************
*******************************************************************************

***************
*** hsCRP *****
***************
xi:reg logcrp i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c qsmkcha4
xi:reg logcrp i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c qsmkcha4

***************
*** hsCRP>=2 **
***************
xi:logit crp1cat i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c qsmkcha4, nolog or
xi:logit crp1cat i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c qsmkcha4, nolog or

***************
**** IL-6 *****
***************
xi:reg logil61 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c qsmkcha4
xi:reg logil61 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c qsmkcha4

***************
** Fibrinogen **
***************
xi:reg logfib1 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c qsmkcha4
xi:reg logfib1 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c qsmkcha4

*******************
*** Internal cIMT **
*******************
xi:reg logint1 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c qsmkcha4
xi:reg logint1 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c qsmkcha4

*******************
*** Common cIMT **
*******************
xi:reg logcom1 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c qsmkcha4
xi:reg logcom1 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c qsmkcha4

*******************
*** CAC>75th *******
*******************
xi:logit cac75phadj i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c qsmkcha4, nolog or
xi:logit cac75phadj i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c qsmkcha4, nolog or

*******************
*** CAC>0 **********
```

```
********************
xi:logit caczero i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c qsmkcha4, nolog or
xi:logit caczero i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c qsmkcha4, nolog or

***************************
*** ABI Low (<=1) *********
***************************
xi:logit abi1low i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c qsmkcha4, nolog or
xi:logit abi1low i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c qsmkcha4, nolog or

***************************
*** ABI Low (<=0.9) *******
***************************
xi:logit abi1low2 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c qsmkcha4, nolog or
xi:logit abi1low2 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c qsmkcha4, nolog or

***************************
*** ABI High(≥1.40 ********
***************************
xi:logit abi1high i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c qsmkcha4, nolog or
xi:logit abi1high i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c qsmkcha4, nolog or


* Adjusting for living with smoker as an adult
* qsmkada4
*******************************************************************************
********************** Living w/Smoker as an Adult ****************************
*******************************************************************************

***************
*** hsCRP *****
***************
xi:reg logcrp i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c qsmkada4
xi:reg logcrp i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c qsmkada4

***************
*** hsCRP>=2 **
***************
xi:logit crp1cat i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c qsmkada4, nolog or
xi:logit crp1cat i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c qsmkada4, nolog or

***************
**** IL-6 *****
***************
xi:reg logil61 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c qsmkada4
xi:reg logil61 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c qsmkada4

****************
** Fibrinogen **
****************
xi:reg logfib1 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c qsmkada4
xi:reg logfib1 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c qsmkada4

********************
*** Internal cIMT **
```

```
********************
xi:reg logint1 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c qsmkada4
xi:reg logint1 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c qsmkada4

********************
*** Common cIMT **
********************
xi:reg logcom1 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c qsmkada4
xi:reg logcom1 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c qsmkada4

********************
*** CAC>75th *******
********************
xi:logit cac75phadj i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c qsmkada4, nolog or
xi:logit cac75phadj i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c qsmkada4, nolog or

********************
*** CAC>0 **********
********************
xi:logit caczero i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c qsmkada4, nolog or
xi:logit caczero i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c qsmkada4, nolog or

**************************
*** ABI Low (<=1) *********
**************************
xi:logit abi1low i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c qsmkada4, nolog or
xi:logit abi1low i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c qsmkada4, nolog or

**************************
*** ABI Low (<=0.9) *******
**************************
xi:logit abi1low2 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c qsmkada4, nolog or
xi:logit abi1low2 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c qsmkada4, nolog or

**************************
*** ABI High(≥1.40 ********
**************************
xi:logit abi1high i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c qsmkada4, nolog or
xi:logit abi1high i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c qsmkada4, nolog or


* Adjusting for Family history
*******************************************************************************
********************** Family History of MI ***********************************
*******************************************************************************

***************
*** hsCRP *****
***************
xi:reg logcrp i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c fhha1c
xi:reg logcrp i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c fhha1c

***************
*** hsCRP>=2 **
***************
```

```
xi:logit crp1cat i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c fhha1c, nolog or
xi:logit crp1cat i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c fhha1c, nolog or

***************
**** IL-6 *****
***************
xi:reg logil61 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c fhha1c
xi:reg logil61 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c fhha1c

****************
** Fibrinogen **
****************
xi:reg logfib1 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c fhha1c
xi:reg logfib1 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c fhha1c

********************
*** Internal cIMT **
********************
xi:reg logint1 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c fhha1c
xi:reg logint1 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c fhha1c

********************
*** Common cIMT **
********************
xi:reg logcom1 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c fhha1c
xi:reg logcom1 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c fhha1c

********************
*** CAC>75th *******
********************
xi:logit cac75phadj i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c fhha1c, nolog or
xi:logit cac75phadj i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c fhha1c, nolog or

********************
*** CAC>0 **********
********************
xi:logit caczero i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c fhha1c, nolog or
xi:logit caczero i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c fhha1c, nolog or

***************************
*** ABI Low (<=1) *********
***************************
xi:logit abi1low i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c fhha1c, nolog or
xi:logit abi1low i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c fhha1c, nolog or

***************************
*** ABI Low (<=0.9) *******
***************************
xi:logit abi1low2 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c fhha1c, nolog or
xi:logit abi1low2 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c fhha1c, nolog or

***************************
*** ABI High(≥1.40 ********
```

```
**************************
xi:logit abi1high i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c fhha1c, nolog or
xi:logit abi1high i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c fhha1c, nolog or


* Adjusting for Heart rate
*hrtrate1
********************************************************************************
********************** Heart Rate ******************************************
********************************************************************************

***************
*** hsCRP *****
***************
xi:reg logcrp i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c hrtrate1
xi:reg logcrp i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c hrtrate1

***************
*** hsCRP>=2 **
***************
xi:logit crp1cat i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c hrtrate1, nolog or
xi:logit crp1cat i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c hrtrate1, nolog or

***************
**** IL-6 *****
***************
xi:reg logil61 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c hrtrate1
xi:reg logil61 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c hrtrate1

****************
** Fibrinogen **
****************
xi:reg logfib1 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c hrtrate1
xi:reg logfib1 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c hrtrate1

********************
*** Internal cIMT **
********************
xi:reg logint1 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c hrtrate1
xi:reg logint1 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c hrtrate1

********************
*** Common cIMT **
********************
xi:reg logcom1 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c hrtrate1
xi:reg logcom1 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c hrtrate1

********************
*** CAC>75th *******
********************
xi:logit cac75phadj i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c hrtrate1, nolog or
xi:logit cac75phadj i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c hrtrate1, nolog or

********************
*** CAC>0 **********
```

```
********************
xi:logit caczero i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c hrtrate1, nolog or
xi:logit caczero i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c hrtrate1, nolog or

***************************
*** ABI Low (<=1) *********
***************************
xi:logit abi1low i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c hrtrate1, nolog or
xi:logit abi1low i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c hrtrate1, nolog or

***************************
*** ABI Low (<=0.9) *******
***************************
xi:logit abi1low2 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c hrtrate1, nolog or
xi:logit abi1low2 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c hrtrate1, nolog or

***************************
*** ABI High(≥1.40 ********
***************************
xi:logit abi1high i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
i.dm031c ldl1 lipid1c pamvcm1c cig1c hrtrate1, nolog or
xi:logit abi1high i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
i.dm031c ldl1 lipid1c pamvcm1c cig1c bmi1c hrtrate1, nolog or

*******************************************************************************
****************** Aim 1: Inflammation (Sensitivity: Exposed vs Unexposed) ****
*******************************************************************************

***************
*** hsCRP *****
***************
xi:reg logcrp i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat
xi:reg logcrp i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c
xi:reg logcrp i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c

* For P-for trend
xi:reg logcrp shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat
xi:reg logcrp shscat_median gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c
xi:reg logcrp shscat_median gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c

***************
*** hsCRP>=2 **
***************
xi:logit crp1cat i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat, nolog or
xi:logit crp1cat i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c, nolog or
xi:logit crp1cat i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or

* For P-for trend
xi:logit crp1cat shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat, nolog
or
xi:logit crp1cat shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c, nolog or
xi:logit crp1cat shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or

***************
**** IL-6 *****
***************
xi:reg logil61 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat
```

```
xi:reg logil61 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c
xi:reg logil61 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c

xi:reg logil61 shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat
xi:reg logil61 shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c
xi:reg logil61 shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c

****************
** Fibrinogen **
****************
xi:reg logfib1 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat
xi:reg logfib1 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c
xi:reg logfib1 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c

xi:reg logfib1 shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat
xi:reg logfib1 shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c
xi:reg logfib1 shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c

********************************************************************************
****************** Aim 1: SA (Sensitivity: Exposed vs Unexposed) ****
********************************************************************************

********************
*** Internal cIMT **
********************
xi:reg logint1 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat
xi:reg logint1 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c
xi:reg logint1 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c

xi:reg logint1 shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat
xi:reg logint1 shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c
xi:reg logint1 shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c

********************
*** Common cIMT **
********************
xi:reg logcom1 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat
xi:reg logcom1 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c
xi:reg logcom1 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c

xi:reg logcom1 shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat
xi:reg logcom1 shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c
xi:reg logcom1 shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c

********************
*** CAC>75th *******
********************
* CAC>75th // Binary //  Using the mean: agatston calcium score, phantom-adjusted
xi:logit cac75phadj i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat, nolog
or
xi:logit cac75phadj i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c, nolog or
xi:logit cac75phadj i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or
```

```
xi:logit cac75phadj shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat,
nolog or
xi:logit cac75phadj shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat
htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c, nolog or
xi:logit cac75phadj shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat
htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or

********************
*** CAC>0 **********
********************
xi:logit caczero i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat, nolog or
xi:logit caczero i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c, nolog or
xi:logit caczero i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or

xi:logit caczero shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat, nolog
or
xi:logit caczero shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c, nolog or
xi:logit caczero shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or

***************************
*** ABI Low (<=1) *********
***************************
xi:logit abi1low i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat, nolog or
xi:logit abi1low i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c, nolog or
xi:logit abi1low i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or

xi:logit abi1low shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat, nolog
or
xi:logit abi1low shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c, nolog or
xi:logit abi1low shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or

***************************
*** ABI Low (<=0.9) *******
***************************
xi:logit abi1low2 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat, nolog or
xi:logit abi1low2 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c, nolog or
xi:logit abi1low2 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or

xi:logit abi1low2 shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat,
nolog or
xi:logit abi1low2 shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c, nolog or
xi:logit abi1low2 shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or

***************************
*** ABI High(≥1.40 ********
***************************
xi:logit abi1high i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat, nolog or
xi:logit abi1high i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c, nolog or
xi:logit abi1high i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or

xi:logit abi1high shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat,
nolog or
xi:logit abi1high shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c, nolog or
xi:logit abi1high shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or
```

```
**************************
*** ABI Combined ********
**************************
xi:logit abi1combined i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat, nolog
or
xi:logit abi1combined i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c, nolog or
xi:logit abi1combined i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or

xi:logit abi1combined shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat,
nolog or
xi:logit abi1combined shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat
htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c, nolog or
xi:logit abi1combined shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat
htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or

*******************************************************************************
****************** Aim 1: Inflammation (Sensitivity: Quartile 4 vs Quartile 1) *
*******************************************************************************

***************
*** hsCRP *****
***************
xi:reg logcrp i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat
xi:reg logcrp i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c
xi:reg logcrp i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c

* For P-for trend
xi:reg logcrp shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat
xi:reg logcrp shscat_median gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c
xi:reg logcrp shscat_median gender1 i.race1c i.site1c educ1cat income1cat htn1c dm031ccat
ldl1 lipid1c pamvcm1c cig1c bmi1c

***************
*** hsCRP>=2 **
***************
xi:logit crp1cat i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat, nolog or
xi:logit crp1cat i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c, nolog or
xi:logit crp1cat i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or

* For P-for trend
xi:logit crp1cat shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat, nolog
or
xi:logit crp1cat shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c, nolog or
xi:logit crp1cat shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or

***************
**** IL-6 *****
***************
xi:reg logil61 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat
xi:reg logil61 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c
xi:reg logil61 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c

xi:reg logil61 shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat
xi:reg logil61 shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c
xi:reg logil61 shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c

***************
** Fibrinogen **
```

```
****************
xi:reg logfib1 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat
xi:reg logfib1 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c
xi:reg logfib1 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c

xi:reg logfib1 shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat
xi:reg logfib1 shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c
xi:reg logfib1 shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c

*******************************************************************************
****************** Aim 1: SA (Sensitivity: Quartile 4 vs Quartile 1) ****
*******************************************************************************

********************
*** Internal cIMT **
********************
xi:reg logint1 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat
xi:reg logint1 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c
xi:reg logint1 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c

xi:reg logint1 shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat
xi:reg logint1 shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c
xi:reg logint1 shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c

********************
*** Common cIMT **
********************
xi:reg logcom1 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat
xi:reg logcom1 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c
xi:reg logcom1 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c

xi:reg logcom1 shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat
xi:reg logcom1 shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c
xi:reg logcom1 shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c

********************
*** CAC>75th *******
********************
* CAC>75th // Binary //  Using the mean: agatston calcium score, phantom-adjusted
xi:logit cac75phadj i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat, nolog
or
xi:logit cac75phadj i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c, nolog or
xi:logit cac75phadj i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or

xi:logit cac75phadj shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat,
nolog or
xi:logit cac75phadj shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat
htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c, nolog or
xi:logit cac75phadj shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat
htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or

********************
*** CAC>0 **********
********************
xi:logit caczero i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat, nolog or
xi:logit caczero i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c, nolog or
```

```
xi:logit caczero i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or

xi:logit caczero shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat, nolog
or
xi:logit caczero shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c, nolog or
xi:logit caczero shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or

**************************
*** ABI Low (<=1) *********
**************************
xi:logit abi1low i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat, nolog or
xi:logit abi1low i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c, nolog or
xi:logit abi1low i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or

xi:logit abi1low shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat, nolog
or
xi:logit abi1low shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c, nolog or
xi:logit abi1low shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or

**************************
*** ABI Low (<=0.9) *******
**************************
xi:logit abi1low2 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat, nolog or
xi:logit abi1low2 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c, nolog or
xi:logit abi1low2 i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or

xi:logit abi1low2 shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat,
nolog or
xi:logit abi1low2 shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c, nolog or
xi:logit abi1low2 shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or

**************************
*** ABI High(≥1.40 ********
**************************
xi:logit abi1high i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat, nolog or
xi:logit abi1high i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c, nolog or
xi:logit abi1high i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or

xi:logit abi1high shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat,
nolog or
xi:logit abi1high shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c, nolog or
xi:logit abi1high shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or

**************************
*** ABI Combined ********
**************************
xi:logit abi1combined i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat, nolog
or
xi:logit abi1combined i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c, nolog or
xi:logit abi1combined i.shscat age1c gender1 i.race1c i.site1c educ1cat income1cat htn1c
dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or

xi:logit abi1combined shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat,
nolog or
```

```
xi:logit abi1combined shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat
htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c, nolog or
xi:logit abi1combined shscat_median age1c gender1 i.race1c i.site1c educ1cat income1cat
htn1c dm031ccat ldl1 lipid1c pamvcm1c cig1c bmi1c, nolog or
save "HMagid MESA Thesis Dataset_Final.dta", replace
**************************
log close
```

Appendix B

This is the R code for Figures 2-5 in Chapter 3.

```
#############################################################################
# Hoda Magid
# JHSPH MHS Thesis
# MESA Analysis
# Forest Plots for Interaction: Inflammation, Subclinical Atherosclerosis, and PAD
#############################################################################

################################################################
## Set-up
################################################################

###Plots for OR and GM Ratios of Subclinical CVD Outcomes by participant subgroups

#set working directory and read data into R form, then save
setwd ("C: Users/hodamagid/Dropbox/JHU Thesis/MESA Analysis Forest Plots/)

################################################################
## Inflammation Plots: hsCRP and IL-6
################################################################
infplot <-  read.csv("/Users/hodamagid/Dropbox/JHU Thesis/MESA Analysis Forest
 Plots/HMagid Thesis Forest Plot_hscrp_il6.csv", na=" ")
save(infplot,file="infplot.rda")

#load data in R form (to bypass the csv crap)
load("infplot.rda")

# FOR ALL PLOTS
#Subgroup headings
group <- c(expression(bold("Overall")),
           expression(bold("Sex")),
           expression(bold("Age, years")),
           expression(bold("Race/Ethnicity")),
           expression(bold("Study Site")),
           expression(bold("Education")),
           expression(bold("Smoking Status")))

#Categories within the subgroups
label <- c("Men","Women","45-54","55-64", "65-74", "75-84",
            "White","Chinnese-American","African-American", "Hispanic",
            "Winston Salem", "New York City", "Baltimore", "Twin Cities",
      "Chicago", "Los Angeles",
            expression(paste(symbol("\243")," High School")),
 expression(paste(symbol("\076")," High School")),
            "Never", "Former")

y1 <- c(25:24,22:19,17:14,12:7,5:4,2:1)                      # Y-values for GM Ratio for
 each subgroup (ex: men or women)  (and for N's)
y2 <- c(27,26,23,18,13,6,3)                                                          #
 Y-values for subgroup labels (ex: Age, years)

y3 <- c(25,24,23:22,20:18,16:14,12:10,8:7,5:4,2:1)                    # Y-values for GM
 Ratio for each subgroup and overall
y4 <- c(27:1)                                                       # Y-values for GM
 Ratio (plot blanks too)

sumlogcrpGMR95ci<-paste(format(infplot$sum_logcrp_GM, digits=2, nsmall=2),"
 (",format(infplot$sum_logcrp_GM_lower,digits=2),"-
 ",format(infplot$sum_logcrp_GM_upper,digits=3),")",sep="")
sumlogcrpGMR95ci[c(2,5,10,15,22,25)] <- ""        # change "NA" to blank

sumlogcrpGMR95p<-paste(format(infplot$sum_logcrp_GM_p, digits=1, nsmall=2))
sumlogcrpGMR95p[c(1,2,4,5,7,8,9,10,12,13,14,15,17:22,24:25,27)] <- ""
 # change "NA" to blank

sumlogil61GMR95ci<-paste(format(infplot$sum_logil61_GM, digits=2, nsmall=2),"
 (",format(infplot$sum_logil61_GM_lower,digits=2),"-
 ",format(infplot$sum_logil61_GM_upper,digits=3),")",sep="")
```

```
sumlogil61GMR95ci[c(2,5,10,15,22,25)] <- ""        # change "NA" to blank

sumlogil61GMR95p<-paste(format(infplot$sum_logil61_GM_p, digits=1, nsmall=2))
sumlogil61GMR95p[c(1,2,4,5,7,8,9,10,12,13,14,15,17:22,24:25,27)] <- ""
 # change "NA" to blank

num<-paste(format(infplot$X28.1, digits=1, nsmall=2))

par(mfrow=c(1,2), mar=c(4,4,4,4), oma=c(1,15,1,1))

##############
#Plot for hscrp#
##############
plot(infplot$sum_logcrp_GM,infplot$X28,type='n',log="x",xlab=expression(bold("GM Ratio
 (95% CI)")), ylab="",axes=F,cex.lab=1, xlim=c(0.8,1.6))

mtext(side=2, at=29, expression(bold("Figure 2. Geometric Mean Ratio of hsCRP and IL-6
 Comparing Quartile 4 of Secondhand Smoke Exposure to Unexposed, Stratified by Participant
 Characteristics")),las=1,adj=0, cex=1.3, line=14.5)  #title

mtext(side=2, at=28,"Characteristics",cex=1.0,font=4,las=1,adj=0,line=14.5)     # top
 heading for characteristics
mtext(side=2, at=28, "N",font=4, las=1,adj=0, cex=1.0, line=7.5)                 # top
 heading for N's
mtext(side=2, at=28, "hsCRP (95% CI)",font=4, las=1,adj=0, cex=1.0, line=6)  # for GM
 Ratio (95% CI)
mtext(side=2, at=28, "P-int",font=4, las=1,adj=0, cex=1.0, line=-0.5)              # top
 heading for P interactions

mtext(side=2,at=y2,group,cex=0.9,font=3,las=1,adj=0,line=14.5)                   #
 headings for group labels (ie gender, location)
mtext(side=2,at=y1,label,cex=0.80,font=2,las=1,adj=0,line=13.5)                   #
 headings for subgroup labels (ie female, JHU)

mtext(side=2,at=y4,sumlogcrpGMR95ci,cex=0.8,font=2,las=1,adj=0,line=5)                 #
 gives the GM Ratio (95% CI) for each subgroup
mtext(side=2,at=y4,sumlogcrpGMR95p,cex=0.8,font=2,las=1,adj=0,line=-0.5)
 # gives the p-interaction for as*subgroup
mtext(side=2,at=y4,num,cex=0.8,font=2,las=1,adj=0,line=7.5)                     # gives
 the p-interaction for as*subgroup

arrows(0.80,y4[9],0.809,y4[9], lty=1, lwd=2, col="black",length=0.05,code=1)      # Need
 to make the arrows for values that extend beyond x-axis
segments(0.80,infplot$X28[9],infplot$sum_logcrp_GM_upper[9],infplot$X28[9],lty=1,lwd=2,
 col = "black")

arrows(1.60,y4[12],1.51,y4[12], lty=1, lwd=2, col="black",length=0.05,code=1)      # Need
 to make the arrows for values that extend beyond x-axis
segments(infplot$sum_logcrp_GM_lower[12],infplot$X28[12],1.6,infplot$X28[12],lty=1,lwd=2,
 col = "black")

arrows(1.60,y4[16],1.51,y4[16], lty=1, lwd=2, col="black",length=0.05,code=1)      # Need
 to make the arrows for values that extend beyond x-axis
segments(infplot$sum_logcrp_GM_lower[16],infplot$X28[16],1.6,infplot$X28[16],lty=1,lwd=2,
 col = "black")

arrows(0.80,y4[17],0.809,y4[17], lty=1, lwd=2, col="black",length=0.05,code=1)      #
 Need to make the arrows for values that extend beyond x-axis
segments(0.80,infplot$X28[17],infplot$sum_logcrp_GM_upper[17],infplot$X28[17],lty=1,lwd=2,
 col = "black")

arrows(1.60,y4[18],1.51,y4[18], lty=1, lwd=2, col="black",length=0.05,code=1)      # Need
 to make the arrows for values that extend beyond x-axis
segments(infplot$sum_logcrp_GM_lower[18],infplot$X28[18],1.6,infplot$X28[18],lty=1,lwd=2,
 col = "black")

arrows(1.60,y4[21],1.51,y4[21], lty=1, lwd=2, col="black",length=0.05,code=1)      # Need
 to make the arrows for values that extend beyond x-axis
segments(infplot$sum_logcrp_GM_lower[21],infplot$X28[21],1.6,infplot$X28[21],lty=1,lwd=2,
 col = "black")
```

```
abline(v=1,lty=1, lwd =2, col = "black")                                        # dashed
 red line at GM Ratio=1
abline(v=c(1.13),lty=3, lwd =2, col = "black")                                  # solid
 blue line at overall GM Ratio
points(infplot$sum_logcrp_GM,infplot$X28,pch=15, col = "black", cex=1.3)
 #plots the points
segments(infplot$sum_logcrp_GM_lower[c(1:8,10,11,13:15,19,20,22:27)],infplot$X28[c(1:8,10
 ,11,13:15,19,20,22:27)],infplot$sum_logcrp_GM_upper[c(1:8,10,11,13:15,19,20,22:27)],infpl
 ot$X28[c(1:8,10,11,13:15,19,20,22:27)],lty=1,lwd=2, col = "black")    #plots the lines
axis(1,at=c(0.8,1.0,1.6),labels=c("0.8","1.0", "1.6"),cex.axis=1,font=2,line=1)
 #axes

##############
#Plot for IL6#
##############
plot(infplot$sum_logil61_GM,infplot$X28,type='n',log="x",xlab=expression(bold("GM Ratio
 (95% CI)")), ylab="",axes=F,cex.lab=1, xlim=c(0.8,1.6))

mtext(side=2, at=28, "IL-6 (95% CI)",font=4, las=1,adj=0, cex=1, line=5.5)  # for GM
 Ratio (95% CI)

mtext(side=2, at=28, "P-int",font=4, las=1,adj=0, cex=1, line=-0.5)             # top
 heading for P interactions

mtext(side=2,at=y4,sumlogil61GMR95ci,cex=0.8,font=2,las=1,adj=0,line=5)                 #
 gives the GM Ratio (95% CI) for each subgroup
mtext(side=2,at=y4,sumlogil61GMR95p,cex=0.8,font=2,las=1,adj=0,line=-0.5)
 # gives the p-interaction for as*subgroup

arrows(0.80,y4[12],0.809,y4[12], lty=1, lwd=2, col="black",length=0.05,code=1)      #
 Need to make the arrows for values that extend beyond x-axis
segments(0.80,infplot$X28[12],infplot$sum_logil61_GM_upper[12],infplot$X28[12],lty=1,lwd=
 2, col = "black")

arrows(0.80,y4[20],0.809,y4[20], lty=1, lwd=2, col="black",length=0.05,code=1)      #
 Need to make the arrows for values that extend beyond x-axis
segments(0.80,infplot$X28[20],infplot$sum_logil61_GM_upper[20],infplot$X28[20],lty=1,lwd=
 2, col = "black")

arrows(1.60,y4[21],1.51,y4[21], lty=1, lwd=2, col="black",length=0.05,code=1)      # Need
 to make the arrows for values that extend beyond x-axis
segments(infplot$sum_logil61_GM_lower[21],infplot$X28[21],1.6,infplot$X28[21],lty=1,lwd=2,
 col = "black")

abline(v=1,lty=1, lwd =2, col = "black")                                        # dashed
 red line at GM Ratio=1
abline(v=c(1.05),lty=3, lwd =2, col = "black")                                  # solid
 blue line at overall GM Ratio
points(infplot$sum_logil61_GM,infplot$X28,pch=15, col = "black", cex=1.3)
 #plots the points
segments(infplot$sum_logil61_GM_lower[c(1:11,13:19,22:27)],infplot$X28[c(1:11,13:19,22:27
 )],infplot$sum_logil61_GM_upper[c(1:11,13:19,22:27)],infplot$X28[c(1:11,13:19,22:27)],lty
 =1,lwd=2, col = "black")    #plots the lines
axis(1,at=c(0.8,1.0,1.6),labels=c("0.8","1.0", "1.6"),cex.axis=1,font=2,line=1)
 #axes

################################################################
## Subclinical Atherosclerosis Plots: Common and Internal cIMT
################################################################
cimtplot <-  read.csv("/Users/hodamagid/Dropbox/JHU Thesis/MESA Analysis Forest
 Plots/HMagid Thesis Forest Plot_common_internal.csv", na=" ")
save(cimtplot,file="cimtplot.rda")

#load data in R form (to bypass the csv crap)
load("cimtplot.rda")

# FOR ALL PLOTS
#Subgroup headings
group <- c(expression(bold("Overall")),
           expression(bold("Sex")),
           expression(bold("Age, years")),
```

```
           expression(bold("Race/Ethnicity")),
           expression(bold("Study Site")),
           expression(bold("Education")),
           expression(bold("Smoking Status")))

#Categories within the subgroups
label <- c("Men","Women","45-54","55-64", "65-74", "75-84",
            "White","Chinnese-American","African-American", "Hispanic",
            "Winston Salem", "New York City", "Baltimore", "Twin Cities",
      "Chicago", "Los Angeles",
            expression(paste(symbol("\243")," High School")),
 expression(paste(symbol("\076")," High School")),
            "Never", "Former")

y1 <- c(25:24,22:19,17:14,12:7,5:4,2:1)                      # Y-values for GM Ratio for
 each subgroup (ex: men or women)  (and for N's)
y2 <- c(27,26,23,18,13,6,3)                                                          #
 Y-values for subgroup labels (ex: Age, years)

y3 <- c(25,24,23:22,20:18,16:14,12:10,8:7,5:4,2:1)                    # Y-values for GM
 Ratio for each subgroup and overall
y4 <- c(27:1)                                                        # Y-values for GM
 Ratio (plot blanks too)

sumlogcomGMR95ci<-paste(format(cimtplot$sum_logcom1_GM, digits=2, nsmall=2),"
 (",format(cimtplot$sum_logcom1_GM_lower,digits=2),"-
 ",format(cimtplot$sum_logcom1_GM_upper,digits=3),")",sep="")
sumlogcomGMR95ci[c(2,5,10,15,22,25)] <- ""        # change "NA" to blank

sumlogcomGMR95p<-paste(format(cimtplot$sum_logcom1_GM_p, digits=1, nsmall=2))
sumlogcomGMR95p[c(1,2,4,5,7,8,9,10,12,13,14,15,17:22,24:25,27)] <- ""
 # change "NA" to blank

sumlogintGMR95ci<-paste(format(cimtplot$sum_logint1_GM, digits=2, nsmall=2),"
 (",format(cimtplot$sum_logint1_GM_lower,digits=2),"-
 ",format(cimtplot$sum_logint1_GM_upper,digits=3),")",sep="")
sumlogintGMR95ci[c(2,5,10,15,22,25)] <- ""        # change "NA" to blank

sumlogintGMR95p<-paste(format(cimtplot$sum_logint1_GM_p, digits=1, nsmall=2))
sumlogintGMR95p[c(1,2,4,5,7,8,9,10,12,13,14,15,17:22,24:25,27)] <- ""
 # change "NA" to blank

num<-paste(format(infplot$X28.1, digits=1, nsmall=2))

par(mfrow=c(1,2), mar=c(4,4,4,4), oma=c(1,15,1,1))

##############
#Plot for Common cIMT
##############
plot(cimtplot$sum_logcom1_GM,cimtplot$X28,type='n',log="x",xlab=expression(bold("GM Ratio
 (95% CI)")), ylab="",axes=F,cex.lab=1, xlim=c(0.9,1.1))

mtext(side=2, at=30, expression(bold("Figure 3. Geometric Mean Ratio of Common and
 Internal cIMT Comparing Quartile 4 of Secondhand Smoke Exposure to Unexposed, Stratified
 by Participant Characteristics")),las=1,adj=0, cex=1.2, line=14.5)  #title

mtext(side=2, at=29,"Characteristics",cex=1,font=2,las=1,adj=0,line=14.5)     # top
 heading for characteristics
mtext(side=2, at=29, "N",font=4, las=1,adj=0, cex=1, line=7.5)                 # top
 heading for N's
mtext(side=2, at=29, "Common cIMT",font=4, las=1,adj=0, cex=1, line=6)  # for GM Ratio
 (95% CI)
mtext(side=2, at=28, "(95% CI)",font=4, las=1,adj=0, cex=1, line=5)  # for GM Ratio (95%
 CI)
mtext(side=2, at=29, "P-int",font=4, las=1,adj=0, cex=1, line=-0.5)              # top
 heading for P interactions

mtext(side=2,at=y2,group,cex=0.9,font=3,las=1,adj=0,line=14.5)                  #
 headings for group labels (ie gender, location)
mtext(side=2,at=y1,label,cex=0.8,font=2,las=1,adj=0,line=13.5)                  #
 headings for subgroup labels (ie female, JHU)
```

```
mtext(side=2,at=y4,sumlogcomGMR95ci,cex=0.8,font=2,las=1,adj=0,line=5)                 #
 gives the GM Ratio (95% CI) for each subgroup
mtext(side=2,at=y4,sumlogcomGMR95p,cex=0.8,font=2,las=1,adj=0,line=-0.5)
 # gives the p-interaction for as*subgroup
mtext(side=2,at=y4,num,cex=0.8,font=2,las=1,adj=0,line=7.5)                    # gives
 the p-interaction for as*subgroup
```

Curriculum Vitae

HODA MAGID

DOB: 09/25/1993 • 615 N. Wolfe Street, W7606 • Baltimore, Maryland 21205 • (510) 304-6341• hmagid1@jhu.edu

EDUCATION

9/13-6/15 (expected) **Johns Hopkins University, Bloomberg School of Public Health** **Baltimore, Maryland**
Masters of Health Science; Epidemiology, Environmental Epidemiology Track
Certificate: Risk Sciences and Public Policy

9/10-6/12 **Santa Clara University** **Santa Clara, California**
Bachelors of Science in Biology and Public Health Sciences, June 2012
Emphasis in Biomedical Sciences

6/08-7/10 **Ohlone College** **Fremont, California**

EXPERIENCE

10/14-Present **American Heart Association** **Baltimore, Maryland**
A-TRAC Fellow

- AHA Tobacco Regulation and Addiction Center (A-TRAC) fellow working with Michael Blaha MD MPH (Director of Clinical Research, Ciccarone Center for the Prevention of Heart Disease; Assistant Professor of Medicine; Johns Hopkins University)
  - Current research study: Alternate Tobacco Product Use in Patients Admitted with Myocardial Infarction
- Through an AHA developed curriculum, developing a strong knowledge base in Tobacco Regulatory Science (TRS), the adverse effects of tobacco use on the human body, and an understanding of history, legislation and current events around tobacco use and regulation.
- Membership and trans-TCORS (Tobacco Centers of Regulatory Science) or intra-cohort collaborations in TRS-related organizations (SRNT, APHA, AHA, etc.).
- Participating in TRS activities at the local, state or federal level; and in TRS conferences or educational venues, including teaching and presenting on TRS topics.

7/13-Present **Johns Hopkins University Bloomberg School of Public Health** **Baltimore, Maryland**
Environmental Health Sciences/Institute for Global Tobacco Control
Graduate Research Assistant

- Conducting descriptive statistical and multivariable analysis; and data management for research projects funded by the Bloomberg Foundation for Tobacco Control. Current projects include:
  - Secondhand Smoke Exposure in Water Pipe Venues in Turkey, Russia, and Egypt.
  - Compliance with smoke-free tobacco legislation in public places: A 12-city study in Turkey.
- Under direction of Principal Investigators: conducting and maintaining quality control protocols for data management and data analysis.
- Contributing to the interpretation and reporting of the study findings
- Being in frequent and direct contact with the study principal investigator, the project coordinator, and the data analyst on all aspects related to data management and analyses.

9/14-Present **Johns Hopkins University Department of Biostatistics** **Baltimore, Maryland**
Graduate Teaching Assistant

- Holding TA office hours and Stata office hours for the main Biostatistics course sequence at JHSPH (approximately 560 students).
- Grading problem sets, quizzes, and exams.
- Working with core Biostatistics departmental faculty during weekly instructor meetings.

1/14-Present **Johns Hopkins University Department of Epidemiology** **Baltimore, Maryland**
Section Instructor and Graduate Teaching Assistant

- Leading bi-weekly lab sessions with lab instructor for 50 graduate public health students
- Holding TA office hours for the main Epidemiology course sequence at JHSPH (approximately 260 students).
- Grading assignments, quizzes, and exams.
- Working with core Epidemiology departmental faculty during weekly instructor meetings.
- Served as a Section Instructor for Undergraduate Epidemiology Course during the Spring 2014 semester: led weekly lab sections on my own for 25 undergraduate public health students.
- Drafted and graded homework, exam questions, and annotated keys.

8/12-12/12 **Egyptian Ministry of Youth** **Cairo, Egypt**
Assistant Program Coordinator

- Assisted in the development of the Ministry's next anti-smoking campaign (original launch date before project termination was February 2013) targeting youth.
- Collaborated with health professionals from the Egyptian Ministry of Health and the World Health Organization's Eastern Mediterranean Regional Office.
- Trained 25 seminar instructors to facilitate prospective anti-smoking seminars for youth ages 12-19.
- Translated anti-smoking campaign proposals and seminar pamphlets from Arabic to English.

12/11-6/12 **California Family Health Council** **Berkeley, California**
Public Affairs Intern

- Assisted in the execution and promotion of CFHC's online reproductive health resource, TeenSource.org, for California youth.
- Worked to increase social media interaction with target audience (via SEO analysis of TeenSource.org and Facebook advertising campaign).
- Managed all of TeenSource's social media accounts.
- Assisted in the execution of various public affairs and community health programs including TeenSource's "Clinic Locator", federally funded "Condom Access Project", and "Nurse D" (a Q&A forum on Tumblr).
- Researched and wrote original weekly blog articles about teen sexual health topics and developed strategic partnerships with other health bloggers through social media.
- Trained four prospective CFHC interns (three undergraduate students and one graduate student).

4/11-7/11 **Düzce University / Santa Clara University Global Fellowship Program** **Düzce, Turkey**
Technology Training Instructor

- Designed and developed two 2-week technology training seminars for 60 K-12 Turkish science and math teachers from Düzce.
- Focused seminars on the implementation of technology into Turkish classroom in order to advance and facilitate student learning in underserved communities.
- Trained teachers in educational software including Khan Academy, CK12, and University Subtitles.
- Collaborated with Düzce's Ministry of Education, Khan Academy, CK12, and University Subtitles.

1/10-6/10 **Ohlone College Chemistry Department** **Fremont, California**
Student Instructor

- Planned and taught tri-weekly one hour and one-on-one tutorial supplemental instruction sessions for fifty first and second year college chemistry students.
- Created weekly concept review handouts to academically support students struggling with course readings, concepts, and lecture materials.

ADDITIONAL EXPERIENCE

11/13-Present	**Johns Hopkins Graduate Muslim Student Association** President	**Baltimore, Maryland**
7/13-Present	**JHSPH Graduate Student Assembly** Epidemiology Department Representative	**Baltimore, Maryland**
6/12-8/12	**Cairo University Cancer Biology Research Laboratory** Research Assistant	**Cairo, Egypt**
10/11-4/12	**Student Clinical Opportunities for Premedical Experience** Hospital Volunteer/Student Intern	**Stanford, California**
9/11-12/11	**BUILD Academic Incubator** Academic Mentor	**Palo Alto, California**
9/11-6/12	**Santa Clara University Muslim Student Association** President	**Santa Clara, California**
1/11-12/11	**TechWadi** Tech Startup Mentorship Program Coordinator	**Palo Alto, California**
10/10-12/11	**Santa Clara University Wellness Center** Peer Health Educator	**Santa Clara, California**
6/09-9/09	**Dar Al Fouad Hospital, Cardiology Department** Hospital Volunteer/Physician Shadow	**Cairo, Egypt**

AWARDS

4/14 **International Society for Environmental Epidemiology**

- Student Travel Award, Abstract Accepted for Student Poster Presentation

3/14 **The Dorothy and Arthur Samet Student Support Fund in the Department of Epidemiology**

- $2,000 Endowed student award selected through Epidemiology faculty nomination only

2/14 **JHSPH Delta Omega Scientific Poster Competition**

- Applied Research, Third Place; Poster Title: “Compliance with Smoke-Free Tobacco Legislation in Indoor Public Places in 12 Cities in Turkey (Phase 1)"

2/13 **University of California, Los Angeles Fielding School of Public Health**

- Future Public Health Leaders Fellowship: $24,000 of tuition support and $5,000 research support
- Dean's Leadership Grant: $20,000 of tuition support.

3/13 **Boston University School of Public Health**

- MPH Scholarship Award: $15,000 of tuition support.

RESEARCH

Master's Thesis (Proposal Approved)

Title: Secondhand Tobacco Smoke and Subclinical Cardiovascular Disease: The Multiethnic Study of Atherosclerosis

Lead Authors: Hoda Magid and Ana Navas-Acien MD PhD

Co-authors: Michael J Blaha MD MPH, Miranda Jones PhD, Joel D. Kaufman MD MPH, Karen H Stukovsky, John W McEvoy MB BCh, Mahmoud Al-Rifai MD, MPH, Wendy S Post MD MS, R Graham Barr MD DrPH, Moyses Szklo MD DrPH, Joseph Pollack MD MPH, Gregory Burke

Submitted Publications

1. Moon, K. **Magid, H**., Susan,J., Torrey, C., Levshin, V., Çarkoğlu' A., Nasr, G., El Rabbat, M. Cohen, J. Strickland, P, Navas-Acien A. Breysse, P. Secondhand Smoke Exposure in Water Pipe Venues in Turkey, Russia, and Egypt. Environmental Health Perspectives.

Selected Peer-reviewed Publications In Preparation

2. **Magid H**, Moon K, Çarkoğlu' A. Ergör' G. Hayran, M. Ergüder, T. Kaplan, B. Pollak, J. Susan, J. Cohen, J. Navas-Acien, A. $PM_{2.5}$ Levels in Hospitality Venues in 12 Cities in Turkey.
3. **Magid, H**. Moon, K. Çarkoğlu' A. Ergör' G. Hayran, M. Ergüder, T. Kaplan, B. Pollak, J. Susan, J. Cohen, J. Navas-Acien, A. Smoking and Secondhand Tobacco Smoke in Taxi Cabs in 12 Cities in Turkey.
4. Navas-Acien, A. Çarkoğlu' A. Ergör' G. Hayran, M. Ergüder, T. Kaplan, B. **Magid, H**. Moon, K. Pollak, J. Susan, J. Cohen, J. Compliance with smoke-free tobacco legislation in public places: A 12-city study in Turkey.

Ongoing Research Support

Food and Drug Administration **Michael Blaha / Diann Gaalema (PI)** **10/01/2014-Present**

American Heart Association

The goal of this study is to characterize recent tobacco use in hospitalized cardiac patients and to track how tobacco use changes after recovery from their cardiovascular event, including the use of e-cigarettes. This survey, funded by the FDA as part of the TCORS at the University of Vermont, focuses on the use of e-cigarettes in patients hospitalized with myocardial infarction with 3 months of follow-up. For this project, the Johns Hopkins A-TRAC site is collaborating with Diann Gaalema (University of Vermont). As an integral member of the research team, I will be working on the data collection, management, analysis, interpretation, and dissemination alongside Dr. Michael Blaha and the rest of the Johns Hopkins A-TRAC study team.
Role: Research Fellow

Bloomberg Initiative for Tobacco Control **Breysse / Navas-Acien (PI)** **05/01/2012-12/31/2014**

The goal of this study is to characterize water pipe secondhand smoke composition and quantify secondhand smoke exposure among water pipe venue employees in 3 cities: Istanbul, Turkey, Moscow, Russia, and Cairo, Egypt. Tobacco control efforts largely exempt water pipe venues, although the prevalence is high and growing in many parts of the world. Laboratory studies suggest that water pipe secondhand smoke contains increased levels of nicotine, carbon monoxide (CO), polycyclic aromatic hydrocarbons (PAHs), and formaldehyde compared with cigarettes. Most previous studies use laboratory data not representative of real-world exposures and do not investigate potential exposure of nearby non-smokers or venue employees.

Role: Research Assistant

Bloomberg Initiative for Tobacco Control Navas-Acien (PI) 05/01/2012-12/31/2014

The goal of this study is to apply and evaluate the smoke-free compliance guide in 12 cities around Turkey, in order to evaluate the current level of compliance with the Turkish smoke-free law. In 2008, Turkey passed a law banning smoking in all indoor public places, including bars, cafes and restaurants as well as outdoor areas in hospitals and mosques. No systematic evaluation of the level of implementation and enforcement of the legislation has been conducted.

Role: Research Assistant

LABORATORY/STATISTICAL ANALYSIS SKILLS

- Biology/Statistics Software: R, Stata, Mesquite, Mega, and BioEdit
- PCR and Gel Electrophoresis
- Western Blots
- Fluorescence Microscopy
- Immunohistochemistry
- Animal Cell Growth Cultures
- Protein/DNA Array